E-Letter on Systems, Control, & Signal Processing
Issue 374, October 2019

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Welcome to Issue 374 of the CSS E-letter available here.
– To submit new articles, visit article submissions on the E-Letter website.
– To **subscribe**, send an empty email to eletter-css-join@lists.it.utsa.edu and you will be automatically subscribed to the CSS E-Letter.
– To **unsubscribe**, please send a blank email to eletter-css-leave@lists.it.utsa.edu and you will be automatically unsubscribed.

The next E-Letter will be mailed out at the beginning of November 2019.

Contents

1 IEEE CSS Headlines

1.1. Become a CSS Member
Contributed by: Ahmad Taha, ahmad.taha@utsa.edu

Become a CSS Member by visiting the following link https://bit.ly/2ZBWCCs.

Back to the contents

1.2. Follow the CSS Social Media Accounts
Contributed by: Ahmad Taha and Ankush Chakrabarty ahmad.taha@utsa.edu, chakrabarty@merl.com

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Like us on Facebook https://facebook.com/CSSIEEE

Back to the contents

1.3. CSS Technically Cosponsored Events
Contributed by: Luca Zaccarian, CSS AE Conferences, zaccarian@laas.fr

The following items have been recently included in the list of events technically cosponsored by the IEEE Control Systems Society:

- 24th International Conference on Methods and Models in Automation and Robotics (MMAR 2019). Miedzyzdroje, Poland. Aug 26 - Aug 29, 2019. http://mmar.edu.pl/

- 8th International Conference on Systems and Control (ICSC'19). Marrakech, Morocco. Oct 23 - Oct 25, 2019. http://lias.labo.univ-poitiers.fr/icsc/icsc2019/

- 23rd International Conference on System Theory, Control and Computing - ICSTCC 2019. Sinaia, Romania. Oct 9 - Oct 11, 2019. http://icstcc2019.cs.upt.ro/

- 27th Mediterranean Conference on Control and Automation. Akko, Israel.
Jul 1 - Jul 4, 2019. https://med19.net.technion.ac.il/

For a full listing of CSS technically cosponsored conferences, please visit
http://ieeecss.org/conferences/technically-co-sponsored
and for a list of the upcoming and past CSS main conferences please visit
http://ieeecss.org/conferences/financially-sponsored

Back to the contents

1.4. CSS Publications Content Digest
Contributed by: Kaiwen Chen, kaiwen.chen16@imperial.ac.uk

The IEEE Control Systems Society Publications Content Digest is a novel and convenient guide that helps readers keep track of the latest published articles.

The CSS Publications Content Digest, available at

http://ieeecss.org/publications-content-digest

provides lists of current tables of contents of the periodicals sponsored by the Control Systems Society. Each issue offers readers a rapid means to survey and access the latest peer-reviewed papers of the IEEE Control Systems Society. We also include links to the Society's sponsored Conferences to give readers a preview of upcoming meetings.

1.5. IEEE Transactions on Automatic Control
Contributed by: Alessandro Astolfi, ieeetac@imperial.ac.uk

Volume 64 (2019), Issue 9 (September)

Scanning the Issue, p. 3527

Papers:

- Distributed Flow Network Balancing with Minimal Effort Gabriele Oliva, Apostolos I. Rikos, Christoforos N. Hadjicostis, Andrea Gasparri, p. 3529
- Motion planning on a class of 6-D Lie groups via a covering map James Douglas Biggs, Helen Henninger, p. 3544
- Perturbation Theory and Singular Perturbations for Input-to-State Multistable Systems on Manifolds Paolo Forni, David Angeli, p. 3555
- Time-Delay Origins of Fundamental Tradeoffs Between Risk of Large Fluctuations and Network Connectivity Christoforos Somarakis, Yaser Ghaedsharaf, Nader Motee, p. 3571
- Switching Stochastic Approximation and Applications to Networked Systems George Yin, Le Yi Wang, Thu Nguyen, p. 3587
- Inexact Newton-Kantorovich Methods for Constrained Nonlinear Model Predictive Control A.L. Dontchev, Mike Huang, Ilya V. Kolmanovsky, Marco M Nicotra, p. 3602
- A Principled Approximation Framework for Optimal Control of Semi-Markov Jump Linear Systems Saeid Jafari, Ketan Savla, p. 3616
- State Classification and Multi-class Optimization of Continuous-time and Continuous-State Markov Processes Xi-Ren Cao, p. 3632
- Feedback Control of Nonlinear Hyperbolic PDE Systems Inspired by Traffic Flow Models Iasson Karafyllis, Nikolaos Bekiaris-Liberis, Markos Papageorgiou, p. 3647
- Robust Compensation of Delay and Diffusive Actuator Dynamics Without Distributed Feedback Ricardo Sanz Diaz, Pedro José Garcia Gil, Miroslav Krstic, p. 3663
- Modeling and control of wave propagation in a ring with applications to power grids Lea Beilkin (Sirota), Anuradha M. Annaswamy, p. 3676
- Control over Gaussian Channels With and Without Source-Channel Separation Anatoly Khina, Elias Riedel Gårding, Gustav M. Pettersson, Victoria Kostina, Babak Hassibi, p. 3690
- Stochastic Filtering of Max-plus Linear Systems with Bounded Disturbances Rafael Santos-Mendes, Laurent Hardouin, Mehdi Lhommeau, p. 3706
- An LP approach for Solving Two-Player Zero-Sum Repeated Bayesian Games Lichun Li, Cedric Langbort, Jeff S. Shamma, p. 3716

Technical Notes and Correspondence:

Volume 64 (2019), Issue 10 (October)

Scanning the Issue, p. 3965

Papers:

- Thompson Sampling for Stochastic Control: The Continuous Parameter Case Michael Jong Kim, Dragan Banjevic, p. 4137
- Minimum-Variance Recursive Filtering for Two-Dimensional Systems with Degraded Measurements: Boundedness and Monotonicity Jinling Liang, Fan Wang, Zidong Wang, Xiaohui Liu, p. 4153

Technical Notes and Correspondence:

- Leader-Following Consensus of Multiple Uncertain Euler-Lagrange Systems With Unknown Dynamic Leader Maobin Lu, Lu Liu, p. 4167
- A bilevel programming approach to the convergence analysis of control-Lyapunov functions Wentao Tang, Prodromos Daoutidis, p. 4174
- Controllability of Nash Equilibrium in Game-Based Control Systems Renren Zhang, Lei Guo, p. 4180
- Adaptive Parameter Estimation in LTI Systems Mirna N. Kapetina, Milan R. Rapaic, Alessandro Pisano, Zoran D. Jelicic, p. 4188
- Globally Optimal State-feedback LQG Control for Large-scale Systems with Communication Delays and Correlated Subsystem Process Noises Yan Wang, Junlin Xiong, Daniel W. C. Ho, p. 4196
- Discrete Time Pontryagin Maximum Principle under State-Action-Frequency Constraints Pradyumna Paruchuri, Debasish Chatterjee, p. 4202
- Stability and L_2-gain Analysis for Linear Time-Delay Systems with Delayed Impulses: An Augmentation Based Switching Impulses Approach Wu-Hua Chen, Zhen Ruan, Wei Xing Zheng, p. 4209
- A Distributed Algorithm for Least Squares Solutions Xuan Wang, Jingqiu Zhou, Shaoshuai Mou, Martin J. Corless, p. 4217
- New Controllability Conditions for Networked Identical LTI Systems Yuqing Hao, Zhisheng Duan, Guan-rong Chen, Fen Wu, p. 4223
- Quadric Inclusion Programs: an LMI Approach to H-infinity-Model Identification Gray Thomas, Luis Sentis, p. 4229
- Robust Fault Diagnosis of Stochastic Discrete Event Systems Xiang Yin, Jun Chen, Zhaojian Li, Shaoyuan Li, p. 4237
- Existence of non-impulsive unique solution and stability for discrete-time linear rectangular descriptor Markov jump systems Jiaming Tian, Shuping Ma, p. 4245
- Comprehending Complexity: Data-Rate Constraints in Large-Scale Networks Alexey S. Matveev, Anton V. Proskurnikov, A. Yu. Pogromsky, Emilia Fridman, p. 4252
- Dynamic Consensus Tracking of Uncertain Lagrangian Systems with a Switched Command Generator He Cai, Guoqiang Hu, p. 4260
- Dynamic Output Feedback Control of the Liouville Equation for Discrete-Time SISO Linear Systems Efstathios Bakolas, p. 4268
- Event-triggered Risk-sensitive State Estimation for Hidden Markov Models Jiapeng Xu, Daniel W. C. Ho, Fangfei Li, Wen Yang, Yang Tang, p. 4276
- Accurate Smoothing Methods for State Estimation of Continuous-Discrete Nonlinear Dynamic Systems yanhui Wang, Hongbin Zhang, Xiang Mao, Li yang, p. 4284
- Distributed time-varying output formation tracking for heterogeneous linear multi-agent systems with a nonautonomous leader of unknown input Yongzhao Hua, Xiwang Dong, Guoqiang Hu, Qingdong Li, Zhang Ren, p. 4292
- Topology Reconstruction of Dynamical Networks via Constrained Lyapunov Equations Henk J. van Waarde, Pietro Tesi, M. Kanat Camlibel, p. 4300

- Lyapunov Conditions for Input-to-State Stability of Hybrid Systems with Memory Wei Ren, Junlin Xiong, p. 4307
- Minimal strongly eventually positive realization for a class of externally positive systems Jianying Zheng, Jiu-Gang Dong, Lihua Xie, p. 4314
- Coordinated Tracking Control with Asynchronous Edge-Based Event-Triggered Communications Bin Cheng, Zhongkui Li, p. 4321
- Linear-Quadratic Mean-Field-Type Games: Jump-Diffusion Process with Regime Switching Julian Barreiro-Gomez, Tyrone E. Duncan, Hamidou Tembine, p. 4329
- Optimal Energy Allocation in Multi Sensor Estimation over Wireless Channels using Energy Harvesting and Sharing Steffi Knorn, Subhrakanti Dey, Anders Ahlen, Daniel E. Quevedo, p. 4337
- Switching Tube-Based MPC: Characterization of Minimum Dwell-Time for Feasible and Robustly Stable Switching Bernardo Andres Hernandez Vicente, Paul Anthony Trodden, p. 4345
- Verification of Fault-predictability in Labeled Petri Nets Using Predictor Graphs Dan You, ShouGuang Wang, Carla Seatzu, p. 4353
- Codiagnosability Analysis of Discrete-Event Systems Modeled by Weighted Automata Gustavo Viana, Marcos V. Moreira, Joao Carlos Basilio, p. 4361
- Opacity Enforcement using Nondeterministic Publicly-Known Edit Functions Yiding Ji, Xiang Yin, Stephane Lafortune, p. 4369
- Self-tuned mirror descent schemes for smooth and nonsmooth high-dimensional stochastic optimization Nahidsadat Majlesinasab, Farzad Yousefian, Arash Pourhabib, p. 4377
- A Sharp Bound on the s-Energy and Its Applications to Averaging Systems Bernard Chazelle, p. 4385
- A Less Conservative Stability Criterion for Discrete-Time Lur'e Systems With Sector and Slope Restrictions Junmin Park, Seok Young Lee, PooGyeon Park, p. 4391
- Distributed Kalman Filtering and Control Through Embedded Average Consensus Information Fusion Sayed Pouria Talebi, Stefan Werner, p. 4396

1.6. IEEE Control Systems Letters
Contributed by: Francesca Bettini, bettini@dei.unipd.it

IEEE Control Systems Letters
Volume 3 (2019), Issue 4 (October)
Please note that IEEE Control Systems Letters is accessible in IEEE Xplore through the web page:
http://ieeexplore.ieee.org/xpl/RecentIssue.jsp?punumber=7782633

Papers:

- Obtaining Consistent Parameter Estimators for Second-Order Modulus Models, F. Ljungberg and M. Enqvist, p. 781
- Self-Triggered Stochastic MPC for Linear Systems With Disturbances, Z. Sun, V. Rostampour, and M. Cao, p. 787
- Deterministic Optimality of the Steady-State Behavior of the Kalman–Bucy Filter, C. Possieri and M. Sassano, p. 793
- Linear Complementarity Systems and Cone-Copositive Lyapunov Stability, L. Iannelli, R. Iervolino, and F. Vasca, p. 799

- Saddle-Flow Dynamics for Distributed Feedback-Based Optimization, C.-Y. Chang, M. Colombino, J. Cortés, and E. Dall'Anese, p. 948

- A Graph-Theoretic Approach to the H-Infinity Performance of Leader–Follower Consensus on Directed Networks, M. Pirani, H. Sandberg, and K. H. Johansson, p. 954 Kinetic-Potential Energy Shaping for Mechanical Systems With Applications to Tracking, J. Ferguson, A. Donaire, and R. H. Middleton, p. 960

- Systematic Design of Decentralized Algorithms for Consensus Optimization, S. Han, p. 966

- Spatially Distributed Networked Sliding Mode Control, J. Ludwiger, M. Steinberger, and M. Horn, p. 972

- Iterative Approximate Nonlinear Inference via Gaussian Message Passing on Factor Graphs, C. H. né Hoffmann, E. Petersen, and P. Rostalski, p. 978

- Resilient Control for Cyber-Physical Systems Subject to Replay Attacks, G. Franzè, F. Tedesco, and W. Lucia, p. 984

- On the Mixed-Integer Linear-Quadratic Optimal Control With Switching Cost, A. De Marchi, p. 990

- Stabilization of Non-Linear Networked Control Systems Closed Over a Lossy WirelessHART Network, A. I. Maass and D. Nešic, p. 996

- Allocating Marketing Resources Over Social Networks: A Long-Term Analysis, V. S. Varma, S. Lasaulce, J. Mounthanyvong, and I.-C. Morarescu, p. 1002

- From Reference Model Selection to Controller Validation: Application to Loewner Data-Driven Control, P. Kergus, M. Olivi, C. Poussot-Vassal, and F. Demourant, p. 1008

- An Input–Output Parametrization of Stabilizing Controllers: Amidst Youla and System Level Synthesis, L. Furieri, Y. Zheng, A. Papachristodoulou, M. Kamgarpour, p. 1014

- Simultaneous Estimation of State and Unknown Input With l-Infinity Guarantee on Error-Bounds for Fuzzy Descriptor Systems, A.-T. Nguyen, T.-M. Guerra, and V. Campos, p. 1020

- Full Order Observer With Unmatched Constraint: Unknown Parameters Identification, M. Fouka, L. Nehaoua, H. Arioui, and S. Mammar, p. 1026

- The Effect of Uniform Quantization on Parameter Estimation of Compound Distributions, R. Seifullaev, S. Knorn, and A. Ahlén, p. 1032

- On Stability of Consensus Control of Discrete-Time Multi-Agent Systems by Multiple Pinning Agents, D. Xu and T. Ushio, p. 1038

- Model Predictive Control Design for Dynamical Systems Learned by Echo State Networks, L. B. Armenio, E. Terzi, M. Farina, and R. Scattolini, p. 1044

- A Symbolic Approach to the Self-Triggered Design for Networked Control Systems, K. Hashimoto, A. Saoud, M. Kishida, T. Ushio, and D. V. Dimarogonas, p. 1050

- Compositional Synthesis of Symbolic Models for Networks of Switched Systems . . A. Swikir and M. Zamani, p. 1056

- Globally Optimal Least-Squares ARMA Model Identification Is an Eigenvalue Problem, C. Vermeersch and B. De Moor, p. 1062

- Active Perception and Control From Temporal Logic Specifications, R. R. da Silva, V. Kurtz, and H. Lin, p. 1068

- Fast Optimal Energy Management With Engine On/Off Decisions for Plug-in Hybrid Electric Vehicles, S. East and M. Cannon, p. 1074

1.7. IEEE CSS Outreach Fund: Fall 2019 Solicitation
Contributed by: Daniel E. Rivera, daniel.rivera@asu.edu

The IEEE Control Systems Society (CSS) Outreach Fund provides grants for projects that will benefit CSS members and the controls community in general. Since its inception in 2011, the Fund has funded 76 grants on behalf of a diverse group of CSS member-led activities. The CSS Outreach Task Force is pleased to announce that the window for proposal submission for its 2019 fall solicitation will be held from November 1 to 20, 2019. Beginning with the fall 2019 solicitation, the maximum amount that can be requested for an Outreach grant has been increased to $20K.

Because of the delays involved in grant approval and processing, any CSS member interested in pursuing an Outreach-funded project starting fourth quarter 2020 (or early to mid-2021) needs to apply during this solicitation. Information regarding the program, which includes proposal requirements, descriptions of current and past funded projects, and an informative 10-minute video overview can be found in:

http://ieeecss.org/activities/control-systems-society-outreach-fund-0

The CSS Outreach Fund is also featured in an article appearing in the August 2019 issue of the Control Systems Magazine:

https://ieeexplore.ieee.org/document/8764655

Inquiries, notices of intent, and requests for application materials must be made directly to Daniel E. Rivera, Outreach Task Force Chair, at daniel.rivera@asu.edu.

Back to the contents

1.8. CFP: Control Systems Letters Special Issue on Learning & Control
Contributed by: Francesca Bettini, bettini@dei.unipd.it

The L-CSS invites submissions for a special issue on *Learning and Control* (to be included, tentatively, in the June 2020 issue of L-CSS).

Authors are invited to submit six-page manuscripts for review on this topic. The deadline for initial submissions is: December 10, 2019. Submission for the special issue will be possible starting on November 10, 2019. Submission instructions can be found in the L-CSS website at https://bit.ly/2meIKvP

Guest Editors:
• Giovanni Cherubini, IBM Research, Zurich, Switzerland
• Martin Guay, Queen's University, Canada
• Sophie Tarbouriech, LAAS-CNRS, Toulouse, France

Recent progress in machine learning has provided performance gains in several fields, in particular when massive data and large amounts of computing are needed. Similarly, modern control theory techniques have found application for the analysis and control design of complex dynamical systems (that is combining models of different nature like ODE, PDE, logics, hybrid, ...). The connection between machine learning and control theory is more and more pertinent in view of surpassing the potentialities of each discipline. For example, distributed adaptive control has been proposed as a modeling framework for integrating heterogeneous elements of artificial intelligence and machine learning into systematic cognitive

architectures.

Control design for dynamical systems involving changing environments, hard nonlinearity, stochastic effects, unknown or unmodeled dynamics, uncertainty or still large dimension, remains an open research topic. It appears then very challenging to extend control theoretic approaches to models that are unavailable or difficult to obtain, possibly affected or built with large amount of data, by adding machine learning and deep learning ingredients in the loop.

This special issue intends to collect new ideas and contributions at the frontier between the fields of control and machine learning theory for dynamical systems. The primary aspect of any contribution should be novelty and originality. Also, the results should be presented in a mathematical language, according to the L-CSS standard.

Specific topics of interest for this special issue include, but are not limited to:
- stability, robustness, performance issues of dynamical systems including machine learning elements in the loop;
- identification, observation and approximation techniques of dynamical systems including machine learning elements in the loop;
- reinforcement learning for control;
- data-driven control including learned models;
- adaptive control for cognitive architectures.

A manuscript submitted to the special issue should be six pages long in the journal format (style files are available on PaperPlaza), which is a strict limit. The contribution may also be accompanied by supplementary material, as is customary in biology journals (up to 9 additional pages are possible). However, according to the journal policy, the value of the submission shall be decided based only the main paper, which must be self-contained, namely, the results can be understood and checked without reading the supplement. The supplement is intended to present complementary information, such as simulations, videos, figures, or examples, but not, for instance, theorem proofs or definitions. Some mathematical background can be added to the supplement, for the reader's convenience, if it is already existing in the literature. However, crucial new derivations must be in the main paper.

The manuscripts will be peer-reviewed by international experts. According to the L-CSS policy, the final decision will be made within two rounds of reviewing with no exceptions. The final decision will be reached no later than 5 months from the initial submission deadline.

Important dates
- Submission deadline: December 10, 2019.
- (Accepted) Papers online publication: within one week from the submission of the final manuscript and in any case no later than 6 months after initial submission.

2   Miscellaneous

2.1. European Control Award
Contributed by: Paul Goulart, paul.goulart@eng.ox.ac.uk

The European Control Award (ECA) is to recognize outstanding contributions by a young researcher in the area of systems and control. The award is sponsored by the European Control Association (EUCA), and will be presented during the annual European Control Conference. The recipient will give a plenary lecture during the final day of the ECC.

Details of this award and the nomination procedure can be found at https://euca-ecc.org/eca.html

The deadline for nominations for the European Control Award is November 30th, 2019.

Back to the contents

2.2. Meet the Faculty Candidates at CDC 2019
Contributed by: Antoine Chaillet, antoine.chaillet@centralesupelec.fr

Building on the success of the past several events, the 2019 CDC will feature the "Meet the Faculty Candidates" poster session. This poster session provides a great opportunity for faculty, search committee members, and recruiters to speak directly with current graduate students and postdoctoral researchers who are seeking faculty positions.

Faculty candidates, registered for the CDC conference, are invited to register for this poster session by completing an online registration form by November 15th, 2019. The session will be held on Wednesday, December 11th, from 6:30pm to 8:30pm at the Acropolis Convention and Exhibition Center.

For further details, please see the CDC webpage:
http://cdc2019.ieeecss.org/student.php
If you have further questions please contact Antoine Chaillet at
antoine.chaillet@centralesupelec.fr.

Back to the contents

2.3. International Graduate School on Control: Course on Control of PDEs
Contributed by: Nikolaos Bekiaris-Liberis, bekiaris-liberis@ece.tuc.gr

Control of PDEs and Nonlinear Delay Systems; Course within the 2020 International Graduate School on Control

Abstract of the course: In the 1990s, the recursive backstepping design revolutionized robust nonlinear control, enabling stabilization of systems with uncertain nonlinearities unmatched by control and of unlimited growth. In the 2000s, taking the backstepping recursion to the continuous limit produced a similar design methodology for boundary control of PDEs and for delay systems. This course starts with an introduction to control of PDEs based on the book Boundary Control of PDEs: A Course on Backstepping Designs (SIAM, 2008), continues on with a specialization of such control designs to nonlinear delay systems based

on the book Nonlinear Control Under Nonconstant Delays (SIAM, 2013), and culminates with control designs for various types of interconnected PDE-ODE systems.

No a priori knowledge on control of delay/PDE systems is required and certain, central notions are reviewed. The practical significance of the methods and concepts is illustrated through various application examples from energy, manufacturing, aerospace, traffic, robotics, and petroleum engineering.

Topics: Lyapunov stability for PDEs; boundary control of parabolic (reaction-advection-diffusion) PDEs; observers with boundary sensing; wave and beam PDEs; first-order hyperbolic (transport-dominated) PDEs; basics of motion planning for PDEs; systems with input delay and predictor feedback; delay robustness of predictor feedback; time-varying input delay; stabilization of nonlinear systems with long input delays; predictor feedback for multi-input delay systems; inverse optimality of predictor feedback; distributed input delays; state- and input-dependent delays; control of interconnected transport/wave PDEs-ODEs; introduction to adaptive control of delay and PDE systems; introduction to control of nonlinear PDEs.

Instructors:
- Miroslav Krstic (http://flyingv.ucsd.edu/), University of California, San Diego, USA
- Nikolaos Bekiaris-Liberis (https://users.isc.tuc.gr/ nlimperis/), Technical University of Crete, Greece

For further information, including the dates and venue of the course as well as logistics see http://www.eeci-igsc.eu/.

2.4. Short Course on Computational Issues in Nonlinear Control and Estimation
Contributed by: Arthur J Krener, ajkrener@nps.edu

EECI Short Course on Computational Issues in Nonlinear Control and Estimation
Imperial College, April 27–May 1

Over the past several decades there has been substantial progress in the development of the theory for control and estimation of nonlinear systems. But implementation of these ideas has lagged behind because of the lack of effective and portable computational tools. Computational nonlinear control is in a similar stage of development that computational linear control was in the early 1980s. At that time there was a well developed theory of linear control and estimation but computational tools lagged behind. Soon after comprehensive tools such as Matlab and Matrix X were developed and put to great use in implementing the linear theory.

Advancements in numerical methods together with the exponential increase in computational power have made it possible to solve complex nonlinear problems. Developing portable and efficient computational algorithms and software tools for nonlinear control and estimation are necessary for the application of the theory. This course will briefly introduce the theoretical methods and then focus on their computational implementation in Matlab or an equivalent language.

3   Books

3.1. Model Predictive Control of Microgrids
Contributed by: Laura Burgess, laura.burgess@springer.com

Model Predictive Control of Microgrids by Carlos Bordons, Félix Garcia-Torres, and Miguel Ridao
ISBN: 978-3-030-24569-6
September 2019, Springer
Hardcover, 266 pages, $159.99/129,99€
https://www.springer.com/gb/book/9783030245696

The book shows how the operation of renewable-energy microgrids can be facilitated by the use of model predictive control (MPC). It gives readers a wide overview of control methods for microgrid operation at all levels, ranging from quality of service, to integration in the electricity market. MPC-based solutions are provided for the main control issues related to energy management and optimal operation of microgrids.

The authors present MPC techniques for case studies that include different renewable sources – mainly photovoltaic and wind – as well as hybrid storage using batteries, hydrogen and supercapacitors. Experimental results for a pilot-scale microgrid are also presented, as well as simulations of scheduling in the electricity market and integration of electric and hybrid vehicles into the microgrid. The authors also provide a modular simulator to be run in MATLAB®/Simulink®, for readers to create their own microgrids using the blocks supplied, in order to replicate the examples provided in the book and to develop and validate control algorithms on existing or projected microgrids.

Model Predictive Control of Microgrids will interest researchers and practitioners, enabling them to keep abreast of a rapidly developing field. The text will also help to guide graduate students through processes from the conception and initial design of a microgrid through its implementation to the optimization of microgrid management.

Content:

1. Microgrid Control Issues
2. Model Predictive Control Fundamentals
3. Dynamical Models of the Microgrid Components
4. Basic Energy Management Systems in Microgrids
5. Energy Management with Economic and Operation Criteria
6. Demand-Side Management and Electric Vehicle Integration
7. Uncertainties in Microgrids
8. Interconnection of Microgrids
9. Microgrids Power Quality Enhancement

4 Journals

4.1. Evolution Equations and Control Theory
Contributed by: Irena Lasiecka, lasiecka@memphis.edu

Evolution Equations and Control Theory (EECT)
Vol. 8, Number 4 , December 2019
https://www.aimsciences.org/journal/A0000-0000/2019/8/4

Papers:

- Mohamed Ouzahra, Controllability of the semilinear wave equation governed by a multiplicative control
- Jamel Ben Amara and Emna Beldi, Simultaneous controllability of two vibrating strings with variable coecients
- Duo Wang, Zheng-Fen Jin and Youlin Shang, A penalty decomposition method for nuclear norm minimization with l1 norm delity term
- Hongwei Wang and Amin Esfahani, Well-posedness and asymptotic behavior of the dissipative Ostrovsky equation
- Giuseppe Maria Coclite and Lorenzo di Ruvo, Discontinuous solutions for the generalized short pulse equation
- Suma'inna, Hirokazu Saito and Yoshihiro Shibata, On some nonlinear problem for the thermoplate equations
- Julius Fergy T. Rabago and Hideyuki Azegami, A new energy-gap cost functional approach for the exterior Bernoulli free boundary problem
- Ryo Ikehata and Shingo Kitazaki, Optimal energy decay rates for some wave equations with double damping terms
- Adriana Flores de Almeida, Marcelo Moreira Cavalcanti and Janaina Pedroso Zanchetta, Exponential stability for the coupled Klein-Gordon-Schrodinger equations with locally distributed damping
- Mattia Turra, Existence and extinction in nite time for Stratonovich gradient noise porous media equations
- Cecilia Cavaterra, Denis Enachescu and Gabriela Marinoschi, Sliding mode control of the Hodgki Huxley mathematical model

4.2. IEEE/CAA Journal of Automatica Sinica
Contributed by: Yan Ou, yan.ou@ia.ac.cn

IEEE/CAA Journal of Automatica Sinica
Volume 6 (2019), Issue 5 (September)
http://ieeexplore.ieee.org/xpl/RecentIssue.jsp?punumber=6570654

Review:

- Guided Crowd Evacuation: Approaches and Challenges. M. Zhou, H. R. Dong, P. A. Ioannou, Y. B. Zhao, and F.-Y. Wang, page 1081

Papers:

- Modelling of a Human Driver's Interaction with Vehicle Automated Steering Using Cooperative Game Theory. X. X. Na and D. J. Cole, page 1095
- Data-Driven Global Robust Optimal Output Regulation of Uncertain Partially Linear Systems. A. Odekunle, W. N. Gao, and Y. B. Wang, page 1108
- Quadratic Stabilization of Switched Uncertain Linear Systems: A Convex Combination Approach. Y. F. Chang, G. Zhai, B. Fu, and L. L. Xiong, page 1116
- Accurate and Robust Eye Center Localization via Fully Convolutional Networks. Y. F. Xia, H. Yu, and F.-Y. Wang, page 1127
- Resilient Fixed-Order Distributed Dynamic Output Feedback Load Frequency Control Design for Interconnected Multi-Area Power Systems. A. Azarbahram, A. Amini, and M. Sojoodi, page 1139
- Deducing Complete Selection Rule Set for Driver Nodes to Guarantee Network's Structural Controllability. X. C. Wang, Y. G. Xi, W. Z. Huang, and S. Jia, page 1152
- A Composite State Convergence Scheme for Bilateral Teleoperation Systems. M. U. Asad, U. Farooq, J. Gu, G. Abbas, R. Liu, and V. E. Balas, page 1166
- On Time-Constant Robust Tuning of Fractional Order [Proportional Derivative] Controllers. V. Badri and M. S. Tavazoei, page 1179
- Investigation of Knowledge Transfer Approaches to Improve the Acoustic Modeling of Vietnamese ASR System. D. Y. Liu, J. Xu, P. Y. Zhang, and Y. H. Yan, page 1187
- Stochastic Iterative Learning Control With Faded Signals. G. G. Qu and D. Shen, page 1196
- A Long-Range Generalized Predictive Control Algorithm for a DFIG Based Wind Energy System. J. S. Solis-Chaves, L. L. Rodrigues, C. M. Rocha-Osorio, and A. J. Sguarezi Filho, page 1209
- Composite Nonlinear Bilateral Control for Teleoperation Systems With External Disturbances. Z. H. Zhao, J. Yang, S. H. Li, and W.-H. Chen, page 1220
- A Software-in-the-Loop Implementation of Adaptive Formation Control for Fixed-Wing UAVs. J. Yang, X. Wang, S. Baldi, S. Singh, and S. Fari, page 1230
- Solving Multi-Area Environmental/Economic Dispatch by Pareto-Based Chemical-Reaction Optimization Algorithm. J. Q. Li, Q. K. Pan, P. Y. Duan, H. Y. Sang, and K. Z. Gao, page 1240
- Cycle Flow Formulation of Optimal Network Flow Problems and Respective Distributed Solutions. R. Asadi and S. S. Kia, page 1251
- Design of a Networked Tracking Control System With a Data-based Approach. S. W. Tong, D. W. Qian, X. Y. Yan, J. J. Fang, and W. Liu, page 1261
- An Incremental Model Transfer Method for Complex Process Fault Diagnosis. X. G. Wang, X. Y. Liu, and Y. Li, page 1268
- Finite-time Feedback Stabilization of a Class of Input-delay Systems With Saturating Actuators via Digital Control. X. Z. Lin, S. T. Huang, W. L. Zhang, and S. H. Li, page 1281

4.3. IMA Journal of Mathematical Control and Information
Contributed by: Hannah Cherry, hannah.cherry@oup.com

IMA Journal of Mathematical Control and Information
Volume 36, Issue 3
Links to all articles in this issue are available online at:

https://academic.oup.com/imamci/issue/36/3

Papers:

- A passivity-based observer for neural mass models
Xian Liu, Cheng-Xia Sun, Qing Gao, and Zhi-Wang Chen
https://academic.oup.com/imamci/article/36/3/701/4838335
- The approximate solution of non-linear time-delay fractional optimal control problems by embedding process
E Ziaei and M. H. Farahi
https://academic.oup.com/imamci/article/36/3/713/4840545
- Flatness-based longitudinal vehicle control with embedded torque constraint
Hugues Mounier, Silviu-Iulian Niculescu, Arben Cela, and Marcel Stefan Geamanu
https://academic.oup.com/imamci/article/36/3/729/4840546
- Global convergence of a class of networks on time scales
Honghua Bin, Boyu Wang, and Zhenkun Huang
https://academic.oup.com/imamci/article/36/3/745/4841656
- Graph-theoretic approach for structural controllability of two-dimensional linear systems
Aissa Omar Elosmani, Djillali Bouagada, and Mohammed Chadli
https://academic.oup.com/imamci/article/36/3/763/4830272
- On linear-quadratic optimal control of implicit difference equations
Daniel Bankmann and Matthias Voigt
https://academic.oup.com/imamci/article/36/3/779/4877165
- A new method for proving the separation principle for the infinite-dimensional LQG regulator problem
Mahyar Mahinzaeim
https://academic.oup.com/imamci/article/36/3/835/4951192
- Preview tracking control for a class of discrete-time Lipschitz non-linear time-delay systems
Xiao Yu and Fucheng Liao
https://academic.oup.com/imamci/article/36/3/849/4951194
- Controllability of semilinear impulsive control systems with multiple time delays in control
Vijayakumar S. Muni and Raju K. George
https://academic.oup.com/imamci/article/36/3/869/4954010
- Robust predictive sliding mode control for input rate-constrained discrete-time system
Rong Li and Qingxian Wu
https://academic.oup.com/imamci/article/36/3/901/4955214
- Extended state observer-based back-stepping control for hypersonic reentry vehicle with input constraints
Chen Chen, Guangfu Ma, Yueyong Lyu, and Yanning Guo
https://academic.oup.com/imamci/article/36/3/921/4962437
- Adaptive outer synchronization and topology identification between two complex dynamical networks with time-varying delay and disturbance
Liangshuang Wang, Jianbao Zhang, and Weigang Sun
https://academic.oup.com/imamci/article/36/3/949/4962438
- H2 model order reduction based on gramians of discrete-time bilinear systems
Yan-peng Li and Yao-lin Jiang
https://academic.oup.com/imamci/article/36/3/963/4963877

- Almost automorphic synchronization of quaternion-valued high-order Hopfield neural networks with time-varying and distributed delays
Yongkun Li, Huimei Wang, and Xiaofang Meng
https://academic.oup.com/imamci/article/36/3/983/4992042
- Analysis of extremum value theorems for function spaces in optimal control under numerical uncertainty
P. Osinenko and S. Streif
https://academic.oup.com/imamci/article/36/3/1015/5032998
- Finite-region boundedness and stabilization for 2D continuous-discrete systems in Roesser model
Dingli Hua, Weiqun Wang, Weiren Yu, and Yixiang Wang
https://academic.oup.com/imamci/article/36/3/1033/4994769

4.4. International Journal of Applied Mathematics and Computer Science
Contributed by: Józef Korbicz, amcs@uz.zgora.pl

International Journal of Applied Mathematics and Computer Science (AMCS)
2019, Volume 29, Number 3 (September)
Special section on "Information Technology for Systems Research" (Piotr Kulczycki, Janusz Kacprzyk, László T. Kóczy and Radko Mesiar, Eds.)
www.amcs.uz.zgora.pl

Special Issue Papers:

- Kulinowski K., Wołoszyn M., Radecka M. and Spisak B.J. The effect of elastic and inelastic scattering on electronic transport in open systems 427
- Kołaczek D., Spisak B.J. and Wołoszyn M. The phase-space approach to time evolution of quantum states in confined systems: The spectral split-operator method 439
- Harmati I.Á. and Kóczy L.T. On the convergence of sigmoidal fuzzy grey cognitive maps 453
- Łukasik S., Lalik K., Sarna P., Kowalski P.A., Charytanowicz M. and Kulczycki P. Efficient astronomical data condensation using approximate nearest neighbors 467
- Bodyanskiy Y.V. and Tyshchenko O.K. A hybrid cascade neuro-fuzzy network with pools of extended neo-fuzzy neurons and its deep learning 477
- Rakovská E. and Hudec M. A three-level aggregation model for evaluating software usability by fuzzy logic 489
- Wielgosz M. and Skoczeń A. Using neural networks with data quantization for time series analysis in LHC superconducting magnets 503

Regular Papers:

- Bartoszewicz A. and Adamiak K. A reference trajectory based discrete time sliding mode control strategy 517
- Napp D., Pereira R., Pinto R. and Rocha P. Realization of 2D (2,2)-periodic encoders by means of 2D periodic separable Roesser models 527
- Rodríguez C., Aranda-Escolástico E., Guinaldo M., Guzmán J.L. and Dormido S. Event-based feedforward control of linear systems with input time-delay 541

- Ettouil R., Chabir K., Sauter D. and Abdelkrim M.N. Synergetic control for HVAC system control and VAV box fault compensation 555
- Janczak A. and Korbicz J. Two-stage instrumental variables identification of polynomial Wiener systems with invertible nonlinearities 571
- Jankowski N. and Linowiecki R. A fast neural network learning algorithm with approximate singular value decomposition 581
- Rutkowski T., Łapa K. and Nielek R. On explainable fuzzy recommenders and their performance evaluation 595
- Gao D., Liu J., Wu R., Cheng D., Fan X. and Tang X. Utilizing relevant RGB-D data to help recognize RGB images in the target domain 611

Editor-in-Chief: Józef Korbicz
Website: www.amcs.uz.zgora.pl
E-mail: amcs@uz.zgora.pl
Scope: modern control theory and practice; artificial intelligence methods and their applications; applied mathematics and mathematical optimisation techniques; mathematical methods in engineering, computer science, and biology Indexation: ACM Digital Library, Applied Mechanics Reviews, Current Mathematical Publications (AMS), DBLP Computer Science Bibliography, EBSCO, Elsevier, Google Scholar, Inspec, Mathematical Reviews (MathSciNet), ProQuest, Clarivate Analytics (formerly Thomson Reuters), Zentralblatt Math, and others.
Impact Factor: 1.504 (2018) / 5-Year IF: 1.553 (2018)

4.5. IET Control Theory & Applications
Contributed by: Jessica Bristow, JBristow@theiet.org

IET Control Theory & Applications
Volume 13
October 2019
http://digital-library.theiet.org/content/journals/iet-cta/13/15

Papers:

- Bahram Shafai ; Mohammad Naghnaeian ; Jie Chen, Stability radius formulation of $L\sigma$-gain in positive stabilisation of regular and time-delay systems, p. 2327 –2335
- He Li and Guang-Hong Yang, Fault detection for fractional-order linear systems in finite frequency domains, p. 2336 –2345
- Da-Kuo Li ; Chong-Xiao Shi ; Guang-Hong Yang, Gossip-based distributed hierarchical algorithm for multi-cluster constrained optimisation, p. 2346 –2355
- Mingkang Long ; Housheng Su ; Bo Liu, Second-order controllability of two-time-Scale discrete-time multi-agent systems, p. 2356 –2364
- Xiaobo Zhang and Zepeng Zhou, Integrated fault estimation and fault tolerant attitude control for rigid spacecraft with multiple actuator faults and saturation, p. 2365 –2375
- Hossein Bolandi and Saman Saki, Design of adaptive model predictive control for a class of uncertain non-linear dynamic systems: stability, convergence, and robustness analysis, p. 2376 –2386

- Ali Forootani ; Raffaele Iervolino ; Massimo Tipaldi, Applying unweighted least-squares based techniques to stochastic dynamic programming: theory and application, p. 2387 –2398
- Peng Wang ; Suli Zou ; Zhongjing Ma, Parallel demand side auction mechanism for dynamic and efficient resource allocation, p. 2399 –2406
- Xiuhua Liu ; Jian Han ; Xinjiang Wei ; Huifeng Zhang ; Xin Hu, Distributed fault detection for non-linear multi-agent systems: an adjustable dimension observer design method, p. 2407 –2415
- Chunxiao Wang ; Jinling Du ; Jiangbo Yu, Adaptive finite-time tracking control for time-varying output constrained non-linear systems with unmatched uncertainties, p. 2416 –2424
- Ganesan Muniandi and Ezhilarasi Deenadayalan, Composite model reference adaptive sliding mode controller for automatic train operation, p. 2425 –2435
- Kai-Ning Wu ; Xin-Xin Han ; Wei-Hai Zhang, Stabilisation of stochastic delay Markovian reaction-diffusion systems via boundary control, p. 2436 –2446
- Xiuyong Ding ; Guisheng Zhai ; Xiu Liu, Drazin inverse conditions for positivity and stability of switched descriptor systems, p. 2447 –2454
- Mostafa Faramin ; Behrooz Rezaie ; Zahra Rahmani, Robust integral feedback control based on interval observer for stabilising parameter-varying systems, p. 2455 –2464

Brief Papers:

- Lin-Xing Xu and Hong-Jun Ma, Distributed output-feedback cooperative tracking control of non-linear multi-agent systems with unknown actuator failures, p. 2465 –2475
- Vahid Badri and Mohammad Saleh Tavazoei, Stability analysis of fractional order time-delay systems: constructing new Lyapunov functions from those of integer order counterparts, p. 2476 –2481
- Yanting Yang ; Yan Liang ; Linfeng Xu ; Yanbo Yang ; Yuemei Qin, Upper bound filter under interval constraints and multiplicative noises, p. 2482 –2491
- Guanpu Chen ; Xianlin Zeng ; Yiguang Hong, Distributed optimisation design for solving the Stein equation with constraints, p. 2492 –2499
- Sixing Zhang ; Li Dai ; Yuanqing Xia, Adaptive MPC for constrained systems with parameter uncertainty and additive disturbance, p. 2500 –2506
- Saurabh Pandey and Somanath Majhi, Relay-based identification scheme for processes with non-minimum phase and time delay, p. 2507 –2519

4.6. International Journal of Control, Automation, and Systems
Contributed by: Keum-Shik Hong, journal@ijcas.com

Papers:

- A Method to Robustify Exact Linearization Against Parameter Uncertainty Na Wang and Bálint Kiss* pp.2441-2451
- A Practical Approach to Adaptive Sliding Mode Control José Antonio González*, Antonio Barreiro, and Sebastián Dormido pp.2452-2461
- Weighted H-Infinity Control of Singularly Perturbed Switched Systems with Mode-dependent Average Dwell Time Lei Ma, Jing Xu, and Chenxiao Cai* pp.2462-2473
- H-Infinity Control of Markovian Jump Systems with Incomplete Knowledge of Transition Probabilities JaeWook Shin and Bum Yong Park* pp.2474-2481
- Stability Analysis for State-constrained Switched Systems with All Subsystems Unstable Jian Li, Wen Li, and Qingyu Su* pp.2482-2489
- Synthesizing Parametrically Robust Control Systems with State Controllers and Observers Based on Gramian Method Sergey V. Tararykin, Anatoly A. Anisimov*, and Artem A. Gerasimov pp.2490-2499
- A Further Result on Global Stabilization of a Class of Nonlinear Systems by Output Feedback with Unknown Measurement Sensitivity Sang-Young Oh and Ho-Lim Choi* pp.2500-2507
- Adaptive Control of a Hose and Drogue System with Input Nonlinearities and Partial State Constraints Liang Chang and Yingmin Jia* pp.2508-2520
- Containment Control of Multi-agent Systems with Time-delays over Heterogeneous Networks Bo Li*, Hong-yong Yang, Zeng-qiang Chen, and Zhong-xin Liu pp.2521-2530
- Energy Optimization Model with Variable Keep-alive cycle Algorithm in Wireless Sensor Network Youngkuk Kwon and Jangmyung Lee* pp.2531-2540
- Adaptive Modified Sliding Mode Control for the Diesel Engine Air Path with Input Saturation Samia Larguech, Sinda Aloui, Olivier Pages, Ahmed El Hajjaji, Abdessattar Chaari pp.2541-2549
- Class-K Function Bounds for Positive Definite Functions on Compact Sets Seungjoon Lee, Jin Gyu Lee, and Hongkeun Kim* pp.2550-2555
- Steering Tracking Control Based on Assisted Motor for Agricultural Tractors Chengqiang Yin*, Shourui Wang, Jie Gao, Ling Zhao, and Hequan Miao pp.2556-2564
- A Spiral Curve Gait Design for a Modular Snake Robot Moving on a Pipe Sheraz Yaqub, Ahmad Ali, Muhammad Usman, Khalil Muhammad Zuhaib, Abdul Manan Khan, Boyoung An, Hyungi Moon, Ji-Yeong Lee, and Changsoo Han* pp.2565-2573
- Design of a Coupling/Decoupling Mechanism of End Effector for a First Aid Robot's Injection Function Taesang Park, Jaeseong Lee, Ikho Lee, Jin Ung An, Dongwon Yun, Seonghun Lee pp.2574-2585
- MuDeepNet: Unsupervised Learning of Dense Depth, Optical Flow and Camera Pose Using Multi-view Consistency Loss Jun-Ning Zhang, Qun-Xing Su, Peng-Yuan Liu*, Hong-Yu Ge, and Ze-Feng Zhang pp.2586-2596
- Bag of Sampled Words: A Sampling-based Strategy for Fast and Accurate Visual Place Recognition in Changing Environments Sang Jun Lee and Sung Soo Hwang* pp.2597-2609
- PSO-based Minimum-time Motion Planning for Multiple Vehicles Under Acceleration and Velocity Limitations Anugrah K. Pamosoaji, Mingxu Piao, and Keum-Shik Hong* pp.2610-2623
- Global Trajectory Planning Based on DWMR Dynamics in Circular Cspace Yunjeong Kim* and Byung Kook Kim pp.2624-2633
- Quintic Polynomial-based Obstacle Avoidance Trajectory Planning and Tracking Control Framework for Tractor-trailer System Ming Yue*, Xiangmin Wu, Lie Guo, and Junjie Gao pp.2634-2646

- Gibbon-inspired Robust Asymmetric Brachiation along an Upward Slope Kim-Doang Nguyen* and Dikai Liu pp.2647-2654
- Approximate Optimal Stabilization Control of Servo Mechanisms based on Reinforcement Learning Scheme Yongfeng Lv, Xuemei Ren*, Shuangyi Hu, and Hao Xu pp.2655-2665
- Robust Stabilization of Memristor-based Coupled Neural Networks with Time-varying Delays Qianhua Fu*, Jingye Cai, and Shouming Zhong pp.2666-2676
- Fuzzy Control with Pole Assignment and Variance Constraints for Continuous-time Perturbed Takagi-Sugeno Fuzzy Models: Application to Ship Steering Systems Wen-Jer Chang*, Yan-Horng Lin, Jialu Du, and Chih-Ming Chang pp.2677-2692
- Deep Leaky Single-Peaked Triangle Neural Networks Chuanhui Shan, Xirong Guo*, and Jun Ou pp.2693-2701

4.7. International Journal of Control
Contributed by: Bing Chu, b.chu@soton.ac.uk

Papers:

- Formation control for multi-robot systems with collision avoidance, Hongjun Yu, Peng Shi, Cheng-Chew Lim & Dongzhe Wang, pages: 2223-2234
- Asymptotical boundedness for stochastic coupled systems on networks with time-varying delay driven by G-Brownian motion, Yong Ren & Wensheng Yin, pages: 2235-2242
- Distributed formation tracking of nonholonomic autonomous vehicles via event-triggered and sampled-data method, Xing Chu, Zhaoxia Peng, Guoguang Wen & Ahmed Rahmani, pages: 2243-2254
- Adaptive sliding mode trajectory tracking control for wheeled mobile robots, Jun-yong Zhai & Zhi-bao Song, pages: 2255-2262
- Delay optimal control and viscosity solutions to associated Hamilton–Jacobi–Bellman equations, Jianjun Zhou, pages: 2263-2273
- Output feedback control of general linear heterodirectional hyperbolic PDE-ODE systems with spatially-varying coefficients, J. Deutscher, N. Gehring & R. Kern, pages: 2274-2290
- Gain-scheduled control of time-varying delay systems with input constraint, Pengyuan Li, Xi-Ming Sun, Faryar Jabbari & Lei Wang, pages: 2291-2299
- Distributed adaptive containment control for high-order nonlinear multi-agent systems, Jianzhong Gu, Wuquan Li & Hongyong Yang, pages: 2300-2311
- Schur method for robust pole assignment of descriptor systems via proportional plus derivative state feedback, Zhen-Chen Guo, pages: 2312-2323
- Adaptive neural network output feedback control for flexible multi-link robotic manipulators, Belkacem Rahmani & Mohammed Belkheiri, pages: 2324-2338
- Example for equivalence of dual and information-based optimal control, Piotr Bania, pages: 2339-2348
- Order evaluation to new elementary operation approach for MIMO multidimensional systems, Shi Yan, Li Xu, Yining Zhang, Yunze Cai & Dongdong Zhao, pages: 2349-2359

- Global output feedback control for uncertain nonlinear feedforward systems, Ping Wang, Kemei Zhang & Xue-Jun Xie, pages: 2360-2368
- A modified sliding-mode observer design with application to diffusion equation, Sepideh Afshar, Kirsten Morris & Amir Khajepour, pages: 2369-2382
- Stabilisation of a wave equation with localised memory term and boundary frictional damping, Ammar Khemmoudj & Mohammed Essalih Aries, pages: 2383-2395
- Balanced truncation for temporal- and spatial-LPV interconnected systems based on the full block S-procedure, Fatimah Al-Taie & Herbert Werner, pages: 2396-2407
- Non-zero sum differential graphical game: cluster synchronisation for multi-agents with partially unknown dynamics, Ni Yang, Jiang-Wen Xiao, Li Xiao & Yan-Wu Wang, pages: 2408-2419
- Design of sliding observers for Lipschitz nonlinear system using a new time-averaged Lyapunov function, Sagar Mehta & Krishna Vijayaraghavan, pages: 2420-2429
- Model matching of switched asynchronous sequential machines via matrix approach, Biao Wang, Jun-e Feng & Min Meng, pages: 2430-2440
- Stabilising feedback control schemes of dynamical systems with completely unknown saturated inputs: an adaptive design method, Hansheng Wu, pages: 2441-2450
- Practical time-varying formation tracking for high-order nonlinear multi-agent systems based on the distributed extended state observer, Jianglong Yu, Xiwang Dong, Qingdong Li & Zhang Ren, pages: 2451-2462
- The maximum principle for partially observed optimal control problems of mean-field FBSDEs, Ruijing Li & Fengyun Fu, pages: 2463-2472

4.8. CFP: IEEE Control Systems Letters Special Issue on Learning & Control
Contributed by: Francesca Bettini, bettini@dei.unipd.it

The L-CSS invites submissions for a special issue on *Learning and Control* (to be included, tentatively, in the June 2020 issue of L-CSS).

Authors are invited to submit six-page manuscripts for review on this topic. The deadline for initial submissions is: December 10, 2019. Submission for the special issue will be possible starting on November 10, 2019. Submission instructions can be found in the L-CSS website at https://bit.ly/2meIKvP

Guest Editors:
- Giovanni Cherubini, IBM Research, Zurich, Switzerland
- Martin Guay, Queen's University, Canada
- Sophie Tarbouriech, LAAS-CNRS, Toulouse, France

Recent progress in machine learning has provided performance gains in several fields, in particular when massive data and large amounts of computing are needed. Similarly, modern control theory techniques have found application for the analysis and control design of complex dynamical systems (that is combining models of different nature like ODE, PDE, logics, hybrid, ...). The connection between machine learning and control theory is more and more pertinent in view of surpassing the potentialities of each discipline. For example, distributed adaptive control has been proposed as a modeling framework for integrating heterogeneous elements of artificial intelligence and machine learning into systematic cognitive

architectures.

Control design for dynamical systems involving changing environments, hard nonlinearity, stochastic effects, unknown or unmodeled dynamics, uncertainty or still large dimension, remains an open research topic. It appears then very challenging to extend control theoretic approaches to models that are unavailable or difficult to obtain, possibly affected or built with large amount of data, by adding machine learning and deep learning ingredients in the loop.

This special issue intends to collect new ideas and contributions at the frontier between the fields of control and machine learning theory for dynamical systems. The primary aspect of any contribution should be novelty and originality. Also, the results should be presented in a mathematical language, according to the L-CSS standard.

Specific topics of interest for this special issue include, but are not limited to:
- stability, robustness, performance issues of dynamical systems including machine learning elements in the loop;
- identification, observation and approximation techniques of dynamical systems including machine learning elements in the loop;
- reinforcement learning for control;
- data-driven control including learned models;
- adaptive control for cognitive architectures.

A manuscript submitted to the special issue should be six pages long in the journal format (style files are available on PaperPlaza), which is a strict limit. The contribution may also be accompanied by supplementary material, as is customary in biology journals (up to 9 additional pages are possible). However, according to the journal policy, the value of the submission shall be decided based only the main paper, which must be self-contained, namely, the results can be understood and checked without reading the supplement. The supplement is intended to present complementary information, such as simulations, videos, figures, or examples, but not, for instance, theorem proofs or definitions. Some mathematical background can be added to the supplement, for the reader's convenience, if it is already existing in the literature. However, crucial new derivations must be in the main paper.

The manuscripts will be peer-reviewed by international experts. According to the L-CSS policy, the final decision will be made within two rounds of reviewing with no exceptions. The final decision will be reached no later than 5 months from the initial submission deadline.

Important dates
- Submission deadline: December 10, 2019.
- (Accepted) Papers online publication: within one week from the submission of the final manuscript and in any case no later than 6 months after initial submission.

4.9. CFP: Journal of Optimization Theory and Applications
Contributed by: Jason L. Speyer, speyer@g.ucla.edu

Call for papers: Special Issue on "Optimization Theory and Application to Aerospace Systems"
Journal of Optimization Theory and Applications

We are pleased to solicit submissions to the Special Issue of JOTA "Optimization Theory and Application to Aerospace Systems". The objective of this Special Issue consists not only in reporting on the current perspective of the theory of optimal control, but to also explore how this theory is influencing aerospace applications. This is fully justified by the current need for efficiencies in performance of aerospace vehicles and systems of vehicles to meet sophisticated missions.

This Special Issue of JOTA on Optimization Theory and Application to Aerospace Systems is dedicated to the Professors David Hull and George Leitmann. Original contributions are encouraged in both theory and practice of optimal control.

The list of topics includes but is not limited to:
- Optimization theory of deterministic and stochastic systems
- Optimal trajectory transfer using impulsive and low thrust
- New guidance methodologies and system robustness
- Numerical Methods for trajectory optimization
- The theory of differential games and its application to guidance systems
- Decentralized optimal control and estimation
- Guidance of clusters and swarms of air vehicles and spacecraft
- Fault detection, identification, and system reconfiguration

Perspectives and Open Problems, either as a section of a paper or as a FORUM paper, are welcome.

Guest Editors:
- Jason L. Speyer, University of California, Los Angeles, USA. E-mail: speyer@g.ucla.edu
- Mauro Pontani, Sapienza University, Rome, Italy. Email: mauro.pontani@uniroma1.it

Manuscripts should meet the Aims and Scope of JOTA and should be prepared in compliance with the Editorial Procedure of the Instructions for Authors found on the journal website at https://bit.ly/2lJ4yQ2

Submission deadline: March 31, 2020
Submission: Manuscripts should be submitted electronically to
https://www.editorialmanager.com/jota/default.aspx.

4.10. CFP: Asian Journal of Control Special Issue
Contributed by: Li-Chen Fu, lichen@ntu.edu.tw

Asian Journal of Control
Special Issue on "TP Model Transformation based Control Design Theories and Applications"

The topic of the special issue belongs to multi-objective control design based on quasi Linear Parameter Varying (qLPV) models and Linear Matrix Inequality (LMI) based optimization. The special issue focuses

on advanced theories and design solutions based on Tensor Product (TP) model transformation.

Recent research shows that by varying the antecedents and consequents in Takagi-Sugeno fuzzy models as well as in other polytopic models, one can strongly influence how the further control design steps will proceed and also how good the resulting control performance will be. The TP model transformation is capable of deriving alternative antecedents and consequents, and of varying and combining the inputs of multiple TS fuzzy and polytopic models. The aim of this special issue is to investigate how better controllers can be obtained by using the best variant of TS fuzzy or polytopic models, and how such variants can be found by TP model transformation. Papers about further developments on the TP model transformation are also highly welcome.

Guest Editors:

Prof. Péter Baranyi

Budapest University of Technology and Economics, Hungary

prof.peter.baranyi@gmail.com

Prof. Yeung Yam

Chinese University of Hong Kong, Hong Kong SAR, China

yyam@mae.cuhk.edu.hk

Important Dates:

December 30, 2019 Deadline for Submissions

March 31, 2020 Completion of First Review

May 31, 2020 Completion of Final Review

August 31, 2020 Receipt of Final Manuscript

January, 2021 (Tentatively Vol. 23, No. 1) Publication

About AJC: The Asian Journal of Control, an ACA (Asian Control Association) affiliated journal, is the first international journal originating from the Asian Pacific region and being recognized by the major body of control researchers in this region. The Asian Journal of Control publishes bimonthly high-quality papers on original theoretical and experimental research and development in the areas of control, involving all facets of control theory and its application. Functionally, this journal not only provides a forum where control researchers and practitioners can exchange their knowledge and experiences in the control areas, but also serves as an educational means for students and any others whoever likes to learn some topics in the same technical area. The journal aims to be a key interface between control communities within the Asian Pacific region and throughout the world and is listed by Science Citation Index Expanded.

How to submit: Potential authors are encouraged to upload the electronic file of their manuscript (in PDF format) through the journal's online submission website: https://mc.manuscriptcentral.com/asjc If you encounter any submission problem, please contact the editorial office: asianjcontr@ntu.edu.tw

Editor-in-Chief: Professor Li-Chen Fu

Department of Electrical Engineering, EE II-524 Tel: +886-2-3366-3558

National Taiwan University, Taipei 10617, Taiwan E-mail: lichen@ntu.edu.tw

All submission should include a title page containing the title of the paper, an abstract and a list of key-

words, authors' full names and affiliations, complete postal and electronic address, and phone numbers. The contacting author should be clearly identified. For detailed submission guidelines, please visit: https://onlinelibrary.wiley.com/page/journal/19346093/homepage/forauthors.html

4.11. CFP: IEEE/ASME Transactions on Mechatronics
Contributed by: Xiang Chen, xchen@uwindsor.ca

First Call for Papers: IEEE/ASME Transactions on Mechatronics with 2020 IEEE/ASME AIM Presentation

Concurrent submissions are called for IEEE and ASME Transactions on Mechatronics (TMech) with IEEE and ASME International Conference on Advanced Intelligent Mechatronics (AIM 2020) Presentation. All topics are welcome within the scopes of TMech:
www.ieee-asme-mechatronics.org and AIM 2020: aim2020.org.
As the flagship conference focusing on mechatronics and intelligent systems and associated with IEEE and ASME Transactions on Mechatronics (TMech), AIM 2020 brings together the international community of experts to discuss the state-of-the-art, new research results, perspectives of future developments, and innovative applications relevant to mechatronics, robotics, automation, industrial electronics, and related areas. IEEE and ASME TMech is a bimonthly periodical that presents the state of the art, recent advances, and practical applications of mechatronics. This TMech/AIM 2020 concurrent submission opportunity integrates timely peer-reviewed journal publication with conference dissemination at the charming and historic Boston city, Massachusetts, USA, to expand awareness of your research and to foster broader impacts of the field of mechatronics.

Both regular and short papers are solicited. The submitted paper should be no more than 8 TMech published manuscript pages, excluding photos and bios of authors. The submissions will be subject to a normal peer review process in the standard of TMech. A Regular Issue of TMech will be dedicated to publishing all accepted and presented papers in October 2020. As the concurrent submission, the decision for the submitted paper, upon the completed review process in which only one round of major/minor revision is allowed, falls into one of the following two categories:

- Accepted for publication in TMech. In this case, the paper will be accepted by AIM 2020 concurrently for presentation and the basic information (abstract, author names and affiliations, etc.) of the accepted paper will be submitted to AIM 2020. The final publication in the dedicated Regular Issue of TMech, however, will be subject to the presentation of the paper in AIM 2020 with paid registration fee.

- Rejected for publication in TMech. In this case, the paper, as well as all review comments, will be forwarded to the Program Committee of AIM 2020 for further consideration. A final acceptance/rejection decision will then be made by the Committee for AIM 2020.

Detailed information and description, including Q&A discussion, about this Call for Paper for TMech with AIM Presentation can be found online at http://aim2020.org/contribute/tmech/

Manuscript preparation: Papers must contain original contributions and be prepared in accordance with the journal standards. Instructions for authors are available online on the TMech website.

Manuscript submission: Manuscripts should be submitted to TMech online at: mc.manuscriptcentral.com/tmech-ieee.

The cover letter should include the following statement: "This paper is concurrently submitted for TMech and AIM 2020 Presentation."

The basic information (abstract, author names and affiliations) of the paper should be submitted concurrently to AIM 2020 online at: ras.papercept.net/conferences/scripts/start.pl. Both submission sites will be ready and open for accepting submissions around the middle of November 2019.

Submission/Review/Decision Timeline:
First Submission for TMech: January 8, 2020
Basic Paper Information due for AIM 2020: January 8, 2020
First Decision for TMech: March 6, 2020
Revised Submission for TMech: March 26, 2020
Final Decision for TMech and AIM 2020: May 1, 2020
Final Paper Information due for AIM 2020: May 15, 2020
Final Submission for TMech: May 15, 2020

For any questions related to this Call for Paper, please contact:
Xiang Chen, xchen@uwindsor.ca, Senior Editor of TMech/General co-Chair for AIM 2020,
Xiaobo Tan, xbtan@egr.msu.edu, Senior Editor of TMech/Program Chair for AIM 2020

5   Conferences and Workshops

5.1. International Conference on Unmanned Aircraft Systems, Greece
Contributed by: Youmin Zhang, Youmin.Zhang@concordia.ca

Call-for-Papers: 2020 International Conference on Unmanned Aircraft Systems (ICUAS'20)

http://www.uasconferences.com

On behalf of the Organizing Committee and the ICUAS Association, it is our pleasure to invite you to contribute to and participate in the 2020 International Conference on Unmanned Aircraft Systems, ICUAS'20, which will be held for the first time outside the U.S., in Athens, Greece, on June 9-12, 2020, at the luxurious Divani Caravel Hotel (http://divanicaravelhotel.com). This annual conference has grown tremendously; it has earned the respect of the professional community and it is constantly co-sponsored technically by the IEEE CSS and RAS and the Mediterranean Control Association. The conference is fully sponsored by the ICUAS Association. Following the usual tradition, the conference will be preceded by one day of tutorials and workshops, followed by three full-days of technical sessions. In 2020, we will introduce 'poster papers' again, which will go under the same thorough review process, but will report on new ideas with only preliminary results. Keynote lectures, panel discussions and a social agenda will complement and complete the four-day event.

Conference topics include (but not limited to): Airspace Control; Integration; Sense-Detect-and-Avoid Systems; Airspace Management; Interoperability; Security; Airworthiness; Levels of Safety; Sensor Fusion; Autonomy; Manned/Unmanned Aviation; Smart Sensors; Biologically Inspired UAS; Micro- and Mini- UAS; Standardization; Certification; Networked UAS; Technology Challenges; Control Architectures; Payloads; Training; Energy Efficient UAS; Path Planning and Navigation; UAS Applications; Environmental Issues; Regulations; UAS Communications; Fail-Safe Systems; Reliability of UAS; UAS Testbeds; Frequency Management; Risk Analysis; UAS Transportation Management (UTM); Policy/Regulation/Law Aspects. The major themes of ICUAS '20 are: integration of manned-unmanned aviation into the national airspace, legal, ethical and privacy issues, regulations, benefits of unmanned aviation to society, UAS/RPAS design for safety, reliability and resilience, and technology standards.

Through Keynote addresses, round table panel discussions and presentations, it is expected that the outcome of the Conference will be a clear understanding of what industry, military, civilian, national and international authorities need, and what are the crucial next steps that need to be completed before UAS are utilized in everyday life applications.

Dates (Please check the latest information at http://www.uasconferences.com)
February 14, 2020: Full Papers/ Invited Papers/Tutorial Proposals Due
April 15, 2020: Acceptance/Rejection Notification
May 8, 2020: Upload Final, Camera Ready Papers
April 15 - May 8, 2020: Early Registration

Paper Submission
All papers must be submitted and uploaded electronically. Go to https://controls.papercept.net.

Welcome and look forward to receiving your contributions and attendance to the ICUAS'20! For detailed information please see www.uasconferences.com.

ICUAS Association Liason Chair:
Kimon P. Valavanis, Univ. of Denver, kimon.valavanis@du.edu

Honorary Chairs:
Didier Theilliol, University of Lorraine
Fulvia Quagliotti, Politecnico di Torino

General Chairs:
Youmin Zhang, Concordia University
Anthony Tzes, NYU Abu Dhabi

Program Chairs:
Antonio Franchi, CNRS-LAAS
Kostas Alexis, University of Nevada, Reno

5.2. ACM Conference on Hybrid Systems: Computation & Control, Australia
Contributed by: Ricardo Sanfelice, ricardo@ucsc.edu

23rd ACM International Conference on Hybrid Systems: Computation and Control
April 21-24, 2020
Sydney Australia
https://bit.ly/2khBAGp/
2020 HSCC CFP: Submissions due October 23

Hybrid Systems: Computation and Control (HSCC) 2020 is the 23rd in a series of conferences focusing on original research on concepts, tools, and techniques from computer science, control theory, and applied mathematics for the analysis and control of hybrid dynamical systems with an emphasis on computational aspects. By drawing on strategies from computation and control, the hybrid systems field offers techniques that are applicable to both man-made cyber-physical systems (ranging from small robots to global infrastructure networks) and natural systems (ranging from biochemical networks to physiological models). Papers in the conference are expected to range over a wide spectrum of topics from theoretical results to practical considerations, and from academic research to industrial adoption.

Topics of interest include, but are not limited to
- Mathematical foundations
- Computability and complexity analysis
- Verification, validation, and testing
- Modeling paradigms and techniques
- Design, synthesis, planning, and control
- Nonlinear and safety-critical control
- Programming and specification languages

- Network science and network-based control
- Security, privacy, and resilience for cyber-physical systems with focus on computation and control
- Autonomy, artificial intelligence and machine learning in CPS
- Design automation for CPS, including design formalisms, techniques and tools for the above topics
- Applications and industrial case studies in: automotive, transportation, autonomous systems, avionics, energy and power, robotics, medical devices, manufacturing, systems and synthetic biology, models for the life sciences, and other related areas.

Special Tracks: This year, HSCC will have three special tracks on interdisciplinary topics of increasing interest and importance to CPS:
(1) Artificial Intelligence and Machine Learning in CPS (autonomous and semi-autonomous CPS, learning-based CPS, deep learning, intersection of robotics/AI and CPS, etc.), and
(2) Design Automation for CPS (modeling, specification, verification, synthesis, composition, hierarchy, languages, etc. for CPS design).
(3) Autonomy and Robotics. The submission requirements and review process for special track papers will be the same as regular papers. The main reason to have a special track is to broaden the HSCC pool of papers in the direction of these topics.

Paper Submission and Information: HSCC invites submissions in the categories of regular papers including special track papers (max 10 pages), and case study and tool papers (max 6 pages). We will employ a double blind reviewing process and will have a rebuttal phase to provide authors the opportunity to reply to reviewer concerns.

Awards: HSCC will have an ACM SIGBED Best Paper Award, all regular papers will be automatically eligible for this award. HSCC will also award an "HSCC Test-Of-Time Award." The rules for eligibility, nomination and selection of the paper for this award can be found here. Repeatability evaluation: Papers that pass repeatability evaluation process will receive the "artifact evaluated" badge and there will be a Best RE Award. Best Demo/Poster: All demos and posters accepted for presentation at HSCC'20 will be eligible for the best demo/poster award.

Dates:
Paper submission deadline: October 23, 2019 (AOE)
Tool paper repeatability package submission deadline: October 28, 2019 (AOE)
Rebuttal phase: December 4-6, 2019
Acceptance/rejection notifications: December 23, 2019 (tentative)
Poster/demo session submission: Typically mid-january (after notification)
Camera-ready: February 14, 2020
Conference dates: April 21-24, 2020

HSCC 2020 will be part of the thirteenth Cyber Physical Systems Week (CPS Week), and co-located with the International Conference on Cyber-Physical Systems (ICCPS), Information Processing in Sensor Networks (IPSN), the Real-Time and Embedded Technology and Applications Symposium (RTAS), Conference on Internet-of-Things Design and Implementation (IOTDI), and related workshops.

5.3. IFAC World Congress 2020, Germany
Contributed by: Rolf Findeisen, rolf.findeisen@ovgu.de

IFAC World Congress 2020 Berlin - Call for Contributions

The deadlines for the 21st IFAC World Congress "Automatic Control – Meeting Societal Challenges" which will take place in Berlin, Germany, 12 – 17 July 2020 are rapidly approaching.

The World Congress has as theme current and future societal challenges for automatic control such as the dramatic changes in the working environment, the delivery of sustainable resources and energy, health and medicine, transportation, and digitalization. This is reflected in topics days, where the standard conference program is complemented by special keynotes, tutorial sessions, outreach lectures, and exhibitions by industrial and technological leaders. For more details, please visit https://www.ifac2020.org

Main conference features are:
• Oral, Interactive, and Demonstrator Contributions
• Invited Sessions and Open Invited Tracks
• Tutorials and Pre-Congress Workshops
• Extended Abstract Contributions for spotlighting late breaking results

Key Dates:
• 15 Oct 2019 Invited session proposals
• 31 Oct 2019 Draft manuscript submission
• 28 Feb 2020 Late breaking results submission

We are looking forward to meeting you at the IFAC 2020 World Congress in Berlin! You can download a PDF of the call under the following link: https://bit.ly/2mhDk32

Sandra Hirche and Rolf Findeisen
IFAC 2020 IPC Co-chairs

5.4. Workshop on Advanced Motion Control, Norway
Contributed by: Michael Ruderman, michael.ruderman@uia.no

IEEE International Workshop on Advanced Motion Control (AMC2020) will be held on April 20-22, 2020, at the University of Agder, Campus Kristiansand, in Norway.
http://ewh.ieee.org/conf/amc/2020/

AMC2020 is 16th in a series of biennial international workshops on Advanced Motion Control, started in 1990 in Yokohama, Japan, and since there uniting an always young and enthusiastic research community grown around the omnipresent motion control technologies and applications. Following to the last AMC2018 in Tokyo, Japan, our wish is to continue bringing together the researchers from both academia and industry and to maintain a highest scientific conference level, with enriching meetings and discussions and interesting and memorable events and experiences.

Main Topics:
- Advanced motion control in mechatronics
- Compliant and flexible robotics
- Intelligent and adaptive motion control systems
- Haptics and robotics in medical applications
- Hybrid and discrete motion control systems
- Actuators and sensors in motion control
- Motion control systems with human-in-the-loop
- Visual servo systems in motion control
- Micro- and nano-mechatronic systems and control
- Related topics involving motion dynamics and control

Plenary sessions:
http://ewh.ieee.org/conf/amc/2020/programP.html

Accepted special sessions:
http://ewh.ieee.org/conf/amc/2020/programS.html

Important Dates:
- Submission of Special Session proposals: August 31, 2019
- Submission of full papers: October 15, 2019
- Notification of acceptance: January 10, 2020
- Submission of final manuscripts: February 7, 2020

5.5. International Carpathian Control Conference, Slovakia
Contributed by: Ivo Petras, ivo.petras@tuke.sk

Call for papers: IEEE 21th International Carpathian Control Conference

On behalf of the conference committee, it is our great pleasure to invite you to attend the IEEE 21th International Carpathian Control Conference (ICCC'2020, https://iccc.fberg.tuke.sk), to be held at Grand Hotel Stary Smokovec, High Tatras, Slovakia, May 27–30, 2020, and present your work at the conference.

1. The list of topics includes
- Measurement, sensors, monitoring and diagnostic systems.
- Identification, modeling and simulation of processes and systems.
- Theory and application of control systems.
- Automation, mechatronics, robotics.
- Intelligent embedded systems and instrumentation.
- Information systems (SCADA/HMI, GIS, and MES) and their Internet support.
- Engineering application of informatics.
- Quality control systems (TQM), production management and industrial logistics.

- Engineering education in control and computer systems.
- Fractional calculus and its applications.
- Industry 4.0.

2. Paper submission
Use EasyChair conference system to upload your abstract: https://easychair.org/conferences/?conf=iccc2020
For the preparation of your paper use the IEEE template (format A4), which is available at: https://bit.ly/1lunzPr

3. Important dates
Submission of abstracts: November 30, 2019
Submission of full papers: January 12, 2020
Notification of acceptance: February 2, 2020
Author registration: February 16, 2020

We look forward to your contributions.

Best regards,
Professor Ivo Petras
TPC Chair of IEEE ICCC 2020
Website: https://iccc.fberg.tuke.sk
E-mail: iccc2020@iccc.sk

5.6. International Conference on Networking, Sensing and Control, China
Contributed by: Daoyi Dong, daoyidong@adfa.edu.au

2020 IEEE International Conference on Networking, Sensing and Control

The 2020 IEEE International Conference on Networking, Sensing and Control will be held in Nanjing, China from 7th to 10th March 2020.
www.icnsc2020.org

This conference brings together both academy and industry to address new challenges, share solutions and discuss future research directions. It will feature plenary speeches, panel sessions, tutorials, workshops, interactive sessions, and invited/special sessions. Contributions are expected from academia, industrial, and management agencies. The conference theme is: AI for Better Life.

Submissions related to all topics in the areas of Networking, Sensing and Control are welcome. The submission deadline is 15 November 2019.

5.7. Workshop at CDC: MPC of Hybrid Dynamical Systems, France
Contributed by: Berk Altın, berkaltin@ucsc.edu

CDC '19 Workshop on Model Predictive Control of Hybrid Dynamical Systems, France
Dec. 10, 2019

Hybrid systems model the behavior of dynamical systems where the states can evolve continuously as well as instantaneously. Such systems arise when control algorithms that involve digital devices are applied to continuous-time systems, or due to the intrinsic dynamics (e.g. mechanical systems with impacts, switching electrical circuits). Hybrid control may be used for improved performance and robustness properties compared to conventional control, and hybrid dynamics may be unavoidable due to the interplay between digital and analog components of a system.

This one day workshop is a complete course on the analysis and design of model predictive control (MPC) schemes for hybrid systems. It presents recently developed results on asymptotically stabilizing MPC for hybrid systems based on control Lyapunov functions. The workshop provides a detailed overview of the state of the art on hybrid MPC, and a short tutorial on a powerful hybrid systems framework (hybrid inclusions) that can model hybrid dynamics described in other frameworks (e.g. switched systems, hybrid automata, impulsive systems). Key analysis tools in this setting are demonstrated, along with several advantages over other frameworks. This background is then used to lay the theoretical foundations of a general MPC framework for hybrid systems, with guaranteed stability and feasibility. The ideas are illustrated in several applications.

The workshop targets a broad audience in academia and industry, including graduate students, looking for an introduction to an active area of research and some modern mathematical analysis tools; control practitioners interested in novel design techniques; researchers in dynamical systems in pursuit of relevant applications; and researchers in industry and labs applying hybrid predictive control methods to engineering systems. The required background is basic familiarity with continuous- and discrete-time nonlinear systems. The lectures are closely related to each other and not meant to be independent research presentations.

For more information, please see the workshop website or contact the organizers.

Website: https://hybrid.soe.ucsc.edu/hybridmpccdc19
Organizers: Berk Altın (berkaltin@ucsc.edu), Ricardo G. Sanfelice (ricardo@ucsc.edu)
Registration: https://css.paperplaza.net/conferences/scripts/start.pl

5.8. Workshop at CDC: Finite, Fixed, and Prescribed-Time Estimation, France
Contributed by: Denis Efimov, denis.efimov@inria.fr

CDC Workshop: Finite-, fixed-, and prescribed-time stabilization and estimation, France
December 10, 2019
Denis Efimov, Miroslav Krstic, Wilfrid Perruquetti, Andrey Polyakov, Drew Steeves

It is a full day workshop that will take place at IEEE CDC 2019 in Nice.

The goal of this workshop is to present recent advances on the design and analysis of control and estimation algorithms with accelerated convergence rates. The focus is to exhibit algorithms which ensure

finite-, fixed- or prescribed-time convergence. The associated approaches and related properties that will be covered include: homogeneity, the implicit Lyapunov function method, time-varying damping, and discretization tools for highly nonlinear systems. Recent interest in these more demanding types of stability are due to emerging applications (e.g., flying robots, cyber-physical systems) which have strict performance requirements regarding convergence rate, robustness and scalability. Conventional control and estimation methods fail to meet these demands. As such, the aforementioned approaches have been developed or extended to meet these strict targets, and will be at the forefront of this workshop.

For more information, please, visit:
https://team.inria.fr/valse/fr/full-day-workshop-finite-fixed-prescribed-time-stabilization-and-estimation-ieee-cdc-2019/

5.9. Session at IFAC World Congress: Benchmarks for Control Education, Germany
Contributed by: JA Rossiter, j.a.rossiter@sheffield.ac.uk

Open invited session at IFAC world congress on Benchmarks and Case Studies for Control Education
Code: egi6v

While there are many good text books and good practice for introductory control courses, this can be somewhat of a minefield for academics trying to identify what resources to use, what topics to include, how to assess or teach and, more specifically, what examples would constitute expected levels of performance and comprehension (for different year groups and levels). The purpose of this session is to bring together a number of examples of 'BENCHMARKS or CASE STUDIES' around which academics can build some of their course design with confidence. We would expect contributors to provide creative commons access to suitable resources as part of their submission. Also, there needs to be an emphasis in the submission as to why the proposal should be considered a BENCHMARK rather than just a useful teaching resource.

So, what do we mean by a benchmark? This could be a number of things so some examples are given below although this list is not intended to be restrictive:

1. Hardware that is appropriate to demonstrate and apply core learning outcomes. We expect many of the laboratory equipment suppliers would be keen to contribute to this but we would be asking for some real focus from them, so precisely which learning outcomes are covered with the proposed hardware.
2. Some authors may wish to focus on technical learning outcomes such as behaviours and look at which authentic case studies can be used to capture and illustrate a number of core requirements.
3. We are particularly keen to receive examples of 'authentic case studies' with suitable motivational discussion material, 1st principles modelling, performance specifications and illustrative control feedback designs. Ideally these would come with suitable simulation software/code/images/descriptions so that academics can quickly and easily include in their own teaching.
4. Online tools and/or mini take home laboratories which can be used for open-ended student investigations around a core set of learning outcomes.
5. Teaching pedagogies designed for core control engineering teaching and learning alongside evidence, evaluation and illustration.

Contributions to open invited tracks can be either regular papers (6-8 pages length) or Extended abstracts (short paper of 2-4 pages length, they will not be published in IFAC PapersOnLine, they will only appear in the congress preprints). This session would be managed and reviewed by TC9.4. Informal inquires can be made to the TC chair Anthony Rossiter (j.a.rossiter@sheffield.ac.uk). Deadline is Oct 31 2019.

5.10. Session at IFAC World Congress: Control of Wireless Networks, Germany
Contributed by: Dominik Baumann, dbaumann@tuebingen.mpg.de

Open invited session in the area of "Control for Next Generation Wireless Networks"
21st IFAC World Congress in Berlin, Germany, July 12-17, 2020.

Next generation wireless networks aim to support critical physical infrastructure, including industrial automation, connected autonomous vehicles, smart grids, and smart cities. As these networking interfaces interact with the physical world, new fundamental research questions arise. In this open invited session, we are soliciting contributions showcasing how the control and autonomous systems community addresses these challenges from various points of view. Topics include, but are not limited to
- Resource allocation for next generation wireless sensing and control applications
- Designs for low-latency, high-reliability, and freshness of information, including networking and information theoretic approaches
- Data-driven tools to support wireless autonomous applications, including reinforcement learning and statistical learning
- Methods for online adaptation to changes in the network or application dynamics
- Formal control performance guarantees under network imperfections
- Next generation wireless control application domains, such as connected vehicles, robotics, industrial automation

Please find a more detailed description here: https://bit.ly/2nJwjJi. Please note that there is no upper limit to the number of papers in these open invited sessions. The submitted papers will be reviewed via the IFAC reviewing process.

Conference website: https://www.ifac2020.org/
Submission website: https://ifac.papercept.net/conferences/scripts/start.pl
Invited Session code: x83d8
Submission deadline: October 31st, 2019

The organizers:
- Dominik Baumann, Max Planck Institute for Intelligent Systems
- Konstantinos Gatsis, University of Pennsylvania
- Karl Henrik Johansson, KTH Royal Institute of Technology
- Sebastian Trimpe, Max Planck Institute for Intelligent Systems

5.11. Track at IFAC World Congress: Quantum Systems, Germany
Contributed by: Daoyi Dong, daoyidong@adfa.edu.au

CFP: Modelling, identification and control of quantum systems
Open Invited Track at IFAC World Congress 2020

We kindly invite you to submit your papers to the Open Invited Track on: "Modelling, identification and control of quantum systems" organized as part of the IFAC World Congress 2020, Berlin, Germany, July 2020. Topics include but not limited to

Modelling and analysis of quantum control systems
- State estimation of quantum systems
- Hamiltonian identification of quantum systems
- Parameter identification of open quantum systems
- Linear quantum systems theory
- Quantum optimal control
- Quantum robust control
- Quantum measurement-based feedback and quantum coherent feedback
- Learning control of quantum systems
- Quantum control applications in molecular systems, quantum metrology and quantum information

Deadline for submission of papers is October 31, 2019. The session Code is na361. For details, please see the IFAC World Congress's website: https://www.ifac2020.org/
Open Invited Track Organizers:
- Daoyi Dong (University of New South Wales, Australia)
- Jr-Shin Li (Washington University in St. Louis, USA)
- Rebing Wu (Tsinghua University, China)

Back to the contents

6 Positions

6.1. PhD: Aarhus University, Denmark
Contributed by: Erdal Kayacan, erdal@eng.au.dk

A fully funded PhD position in Deep learning for end-to-end motion planning of unmanned aerial vehicles

We invite applications for a fully funded doctoral researcher position in the field of deep learning for end-to-end motion planning of unmanned aerial vehicles. The project is supported by the H2020 ICT – RIA program OpenDR for research and development in Deep Learning for Robotics.

In this project, we will introduce end-to-end motion planning methods for UAV navigation. Informed by a rough path to goal in partially known environments, the developed method will create desirable, local motion plans using raw images from the front-facing camera on quadrotor. According to our scenario, environment is partially known without exact obstacle location information, an initial rough path to goal is given, and concatenation of desirable local motion plans for safe navigation is to be found. Such scenarios can be seen in many indoor navigation problems, such as autonomous drone racing.

What you stand to gain: a fully funded PhD position for 3 years (starting February 2020) at the Department of Engineering, Aarhus University; a fun environment to drive your passion for robotics. The research will be carried out under the supervision of Assoc. Prof. Erdal Kayacan (http://www.erdal.info) at Artificial Intelligence in Robotics (Air) Lab: http://eng.au.dk/en/research/electrical-and-computer-engineering/control-and-automation/artificial-intelligence-in-robotics.

Qualifications and specific competences:
Required:
- A Master's degree in mechanical engineering, electrical engineering, aerospace engineering, computer science/engineering, control theory, mechatronics, applied mathematics, or other related disciplines,
- Excellent verbal and writing skills in English with very good communication skills,
- Experience in Robot Operating System (ROS), and
- Concrete knowledge in C/C++.

Preferred:
- Hands on experience in UAVs and basic understanding of UAV models,
- Experience in machine learning methods; e.g. deep learning, and
- Demonstration of research activities (conference or journal papers).

Contacts: Applicants seeking further information are invited to contact:
Assoc. Prof. Erdal Kayacan (erdal@eng.au.dk)

How to apply: Please follow the instructions here:
http://phd.scitech.au.dk/for-applicants/apply-here/november-2019/deep-learning-for-end-to-end-motion-planning-of-unmanned-aerial-vehicles/

6.2. PhD: University of Louisville, USA
Contributed by: Chris Richards, chris.richards@louisville.edu

Ph.D. Position in AI and Control for Robotic Space Vehicles

A Ph.D. position is available beginning Spring 2020 in the Department of Mechanical Engineering at the University of Louisville, Louisville, KY, USA. The research encompasses topics of AI based GN&C with application to robotic space vehicles. The research group that the applicant would work in focuses on autonomous and semi-autonomous control of surface and flight vehicles with focus on nonlinear control systems (e.g., nonlinear plant dynamics, saturated control signals).

The position is a graduate teaching assistantship (GTA) that includes a stipend and covers full tuition. The GTA is guaranteed for 1 year and renewable for an additional 8 months based on performance. Transitioning to a graduate research assistantship (GRA) would then occur, and can occur sooner, provided outstanding performance.

Qualifications: The applicant must have a strong background in control systems and/or robotics. Applicants with experience in robust control, nonlinear control and/or AI are encouraged to apply. The applicant must be experienced with the Matlab/Simulink programming environment.

Dates: Beginning Spring 2020.

How to apply: Applications should be emailed to Dr. Chris Richards (chris.richards@louisville.edu), as soon as possible. Please include a CV, PDFs of relevant publications, and names and email addresses of at least two references.

6.3. PhD: University of Wyoming, USA
Contributed by: Chao Jiang, chao.jiang@uwyo.edu

One PhD position is available in the group of Dr. Chao Jiang in the Department of Electrical and Computer Engineering at the University of Wyoming, WY, USA. The research focus of this position is in the general area of intelligent control of autonomous robots and machine learning. Prospective students are expected to develop robotic learning, planning and control algorithms with applications to human-robot interaction/collaboration, multi-robot systems, autonomous cyber-physical systems. The successful candidate can be admitted in Spring or Fall 2020 and will receive tuition scholarship and stipend support. Applicants shall have a master's degree in electrical or computer engineering or a related discipline. International students shall have GRE and TOEFL (or IELTS) before admission.

Interested candidates please email your CV and a one-page statement providing details about your skills and research experience in robotics, controls, and machine learning to Dr. Chao Jiang at chao.jiang@uwyo.edu.

The University of Wyoming is situated in Laramie, WY, which is a picturesque and friendly town 130 miles northwest of Denver, CO. More information: https://sites.google.com/view/chaojiang/home

6.4. PhD: North Carolina A&T State University, USA
Contributed by: Ioannis (Yannis) Raptis, iraptis@ncat.edu

Ph.D. Positions - Distributed Fault Diagnosis of Networked Control Systems Applications are invited for two Ph.D. positions in Distributed Fault Diagnosis of Networked Control Systems. The positions are with the Department of Electrical and Computer Engineering at North Carolina A&T State University; the students will work under the supervision of Dr. Ioannis Raptis. The research is funded by the National Science Foundation.

This project will establish an analytical framework for the design of distributed model-based fault-sensitive filters for complex processes. Estimation-based filters will be designed that can identify and isolate faults that occur to large-scale nonlinear systems. The research has analytical, computational and experimental components. The derived algorithms will be validated using an actual sensor network that will monitor a test-bed physical system with distributed subcomponents.

Students from all majors relevant to estimation theory, control systems, computer science or engineering, and applied mathematics are encouraged to apply. For the first position, preference will be given to candidates with a strong background in signal processing, nonlinear dynamic systems, and probability theory. The second position has mainly an experimental application focus. Candidates with demonstrated experience in data acquisition hardware and software tools (Labview) will only be considered for this position. Background in computer networks is a significant plus. Excellent communication skills (written and oral) are required for both positions.

The assistantships include a tuition waiver and graduate student stipend. Review of submissions will begin immediately. Interested students are strongly encouraged to apply early, as the hire of successful candidates will take place on a first-come-first-served basis. The desired start dates are January or September 2020.

To Apply, Please email, as a single .pdf document, the following items to iraptis@ncat.edu: (i) a cover letter (clearly indicating expected start date, relevant experience, and motivation); (ii) detailed Curriculum Vitae; (iii) copies of unofficial transcripts; (iv) GRE and TOEFL (for international students) scores; and (iv) copies of relevant publications (if any). Note that only interested candidates will be considered, and contacted, who clearly show to their cover letter (or application email) how their background and research interests align with the position, and shortlisted applicants will be directed to apply to the Department of Electrical and Computer Engineering.

6.5. PhD: Norwegian University of Science and Technology, Norway
Contributed by: Damiano Varagnolo, damiano.varagnolo@ntnu.no

The Department of Engineering Cybernetics at the Norwegian University of Science and Technology (NTNU) in Trondheim, Norway, has a vacant PhD position within the field of system identification, with deadline November 17th, 2019.

The focus of the project is on approaching theoretical, algorithmic and practical problems relative to combining design-oriented with operation-oriented models. More specifically, the candidate is expected to

develop theoretically grounded frameworks for integrating modelling strategies that are typically used when designing a system (e.g., finite elements (FE) and computational fluid dynamics (CFD) models) with modelling strategies that are typically used when operating that system.

As a short and not exhaustive list of examples, the research will focus among others on understanding how to:
- select control-oriented models structures plus identify their parameters (together with opportune confidence bounds) from combinations of field and synthetic data;
- complementing experiments design procedures using also information from FE/CFD models.

From an industrial perspective, the expected impact of the project is to simplify, corroborate and fasten the execution of virtual and real commissioning. The project will be executed under the supervision of professors Damiano Varagnolo and Adil Rasheed in collaboration with Equinor and Kongsberg Digital. The main workplace will be the Department of Engineering Cybernetics at the Norwegian University of Science and Technology (NTNU) in Trondheim, an equal opportunity employer described in details at https://www.ntnu.edu/itk.

Candidates shall have a background in automatic control and expertise in statistical methods; persons with knowledge within system identification are particularly encouraged to apply. Good written and oral English language skills are a non-negotiable prerequisite.

The suggested starting date is February 2020, even if some flexibility in this date is allowed. The employment period is 3 years, with the possibility of extending the contract for maximum one year by serving maximum 25% of the employment time for teaching duties. The PhD candidate salary is normally NOK 449400 before tax per year; from the salary, 2% is deducted as a contribution to the Norwegian Public Service Pension Fund. Applications are to be submitted through https://www.jobbnorge.no/en/available-jobs/job/175134/phd-position. All applications will be treated in the strictest confidence. For more information, please contact damiano.varagnolo@ntnu.no.
Deadline: November 17th, 2019

6.6. PhD: Max Planck Institute, Germany
Contributed by: Sebastian Trimpe, trimpe@is.mpg.de

Funded Ph.D. Positions at the International Max Planck Research School for Intelligent Systems

The Max Planck Institute for Intelligent Systems and the Universities of Stuttgart and Tübingen collaborate to offer an interdisciplinary Ph.D. program, the International Max Planck Research School for Intelligent Systems (IMPRS-IS). This doctoral program will accept its fourth generation of Ph.D. students in spring of 2020.

This school is a key element of Baden-Wurttemberg's Cyber Valley initiative to accelerate basic research and commercial development in artificial intelligence. We seek students who want to earn a doctorate while contributing to world-leading research in areas such as
- Computational Cognitive Science

- Computer Graphics
- Computer Vision
- Control Systems
- Haptics
- Human-Computer Interaction
- Machine Learning
- Micro- and Nano-Robotics
- Perceptual Inference
- Robotics

The participating faculty are Frank Allgower, Alexander Badri-Sprowitz, Philipp Berens, Matthias Bethge, Michael J. Black, Andres Bruhn, Andreas Bulling, Martin Butz, Caterina De Bacco, Peer Fischer, Andreas Geiger, Martin A. Giese, Matthias Hein, Philipp Hennig, Ardian Jusufi, Katherine J. Kuchenbecker, Hendrik Lensch, Falk Lieder, Georg Martius, Mijung Park, Tian Qiu, C. David Remy, Ludovic Righetti, Syn Schmitt, Gabriele Schweikert, Bernhard Scholkopf, Fabian Sinz, Metin Sitti, Ingo Steinwart, Jorg Stuckler, Marc Toussaint, Sebastian Trimpe, Isabel Valera, Ulrike von Luxburg, and Felix Wichmann.

Intelligent systems that can successfully perceive, act, and learn in complex environments hold great potential for aiding society. To advance human knowledge in this domain, we need doctoral students who are curious, creative, and passionate about research to join our school.

- You may join our program starting in spring of 2020
- You will be mentored by our internationally renowned faculty.
- You will register as a university doctoral student and conduct research.
- IMPRS-IS offers a wide variety of scientific seminars, workshops, and social activities.
- All aspects of our program are in English.
- Your doctoral degree will be conferred when you successfully complete your Ph.D. project.
-Our dedicated coordinator will assist you throughout your time as a doctoral student.

People with a strong academic background and a master's degree in Engineering, Computer Science, Cognitive Science, Mathematics, Control Theory, Neuroscience, Materials Science, Physics, or related fields should apply. We seek to increase the number of women in areas where they are underrepresented, so we explicitly encourage women to apply. We are committed to employing more handicapped individuals and especially encourage them to apply. We are an equal opportunity employer and value diversity at our institutions.

Admission will be competitive. If selected, you will receive funding via an employment contract, subject to the rules of the Max Planck Society and the two participating universities. You can apply at http://imprs.is.mpg.de before midday CET on November 6, 2019. Finalists will be invited to selection interviews that will take place from January 28 to January 31, 2020, in Stuttgart and Tübingen, Germany.

For further information, please visit http://imprs.is.mpg.de

6.7. PhD: Wayne State University, USA
Contributed by: Azad Ghaffari, aghaffari@wayne.edu

One funded Ph.D. position is available in the Department of Mechanical Engineering at Wayne State University as early as January 2020. The research focuses on the safety control of autonomous robots and vehicles, and supervisory control design over smart networks. The ideal candidate will have a master's degree in Electrical, Mechanical, or Computer Engineering (or other closely related fields) with a focus on control systems and optimization. We also consider candidates with a bachelor's degree who have a strong academic record. Preferred programming skills include MATLAB, Simulink, and C/C++.

A good understanding of embedded system design and a keen interest to develop hardware-in-the-loop simulations and familiarity with fast prototyping techniques are desirable. Please note that along with research duties, the candidate has to satisfy the Department's course requirement to advance to Ph.D. candidacy. The course requirement depends on the academic history of the candidates and their type of degree. The selected candidate will join Dr. Ghaffari's lab in the Department of Mechanical Engineering. For more information about Dr. Ghaffari's research, please visit
http://aghaffari.eng.wayne.edu.

Interested candidates, please send a copy of your recent CV to aghaffari@wayne.edu. In your email, briefly highlight your skills relevant to the announced position and future research and education plans. Review of applications will begin immediately.

Wayne State University has contributed to academic and research excellence in the state of Michigan since 1868. Our beautiful campus is in the heart of Detroit, where we offer high-quality education to more than 27,000 students from more than 70 countries. Our deep-rooted commitment to excellence, collaboration, integrity, diversity, and inclusion creates exceptional educational opportunities preparing students for success in a diverse, global society.

Back to the contents

6.8. PhD: University of Houston, USA
Contributed by: Marzia Cescon, mcescon2@central.uh.edu

The department of Mechanical Engineering at the University of Houston invites applications for: Multiple PhD positions in the areas of Learning-Based Decision Making and Control in Complex Physiological and Biomedical Systems.

General job description: The successful candidates will conduct cutting edge interdisciplinary research toward the development of medically inspired and Internet-of-Things enabled methods and tools for the automation of complex physiological and biomedical systems under the supervision of Dr. Marzia Cescon. Research topics include, but are not limited to, learning and adaptation based control strategies for drug delivery, digital biomarker discovery in diabetes, monitoring of physiological variables in the healthy individual and in people affected by chronic conditions and learning-based decision support systems for training prescription in elite endurance sports. Research activities in the group directed by Dr. Cescon involve signal processing, control design, computer simulations and translation of the work to feasibility and proof-of-concept human studies in the real world.

Requirements: Applicants should have a strong mathematical background, knowledge of systems theory, automatic control and/or machine learning and solid programming skills (Python, Java and/or Matlab/Simulink are preferred). Applicants are expected to have obtained or to be in the process of obtaining a M.Sc. degree in Applied Math, Systems and Controls, Mechanical Engineering, Electrical and Computer Engineering, Biomedical Engineering or Computer Science.

Condition of Employment: The earliest start of the positions is the Spring Semester of 2020. Successful candidates will be enrolled in the University of Houston Graduate School and receive full financial support (monthly stipend and full tuition exemption) through Graduate Research Assistantships or Teaching Assistantships.

About the University of Houston: The University of Houston is a designated Carnegie Tier One public research university. The city of Houston, in addition to being the energy capital of the world, is home to the Texas Medical Center, the largest medical center in the world offering ample opportunities for interaction and collaborations with member institutions and supports a full spectrum of cultural organizations, as well as sports, and year-around outdoor activities.

Application and More Information: For more information about these vacancies please contact Dr. Marzia Cescon (mcescon2@uh.edu). To access the application, please visit the Graduate School webpage: http://www.uh.edu/graduate-school/. The deadline for ensuring full consideration is November 1, 2019, however the positions will remain open until filled. Acceptance to the program is based on a competitive combination of academic background, GRE scores, recommendation letters and Statement of Purpose.

6.9. PhD: Melbourne School of Engineering, Australia
Contributed by: Erik Weyer, ewey@unimelb.edu.au

PhD Scholarship: Control and prediction for water resources systems As part of a strategic initiative the Melbourne School of Engineering has made available fully funded PhD scholarships in the areas of 1) Economic model predictive control for operations of urban water distribution networks and 2) Operations of dams and rivers using ensemble forecasts and model predictive control. These projects are collaborative projects between the Departments of Infrastructure Engineering and Electrical and Electronic Engineering.

Urban water distribution networks are complex systems which face many operational challenges under uncertainty. Challenges include reducing energy costs due to pumping and operation of desalination plants, reducing the environmental footprint of the water delivery and at the same time ensure reliable supply of water. Uncertainty includes fluctuating energy prices, uncertain demand for water and uncertainty in rainfall forecasts for surrounding catchments. Similarly, operations of dams and rivers are also faced with challenges due to uncertainty in inflows, rainfall, demand for urban and rural water etc.

In these project we will investigate the use of Stochastic model predictive control techniques in the operation of water resources systems, and in particular the use of ensemble forecast to represent the uncertainties in e.g. future in-flows, demand for water and electricity prices. The candidates should have a relevant degree with a strong background in one or more of the following areas

- control
- prediction
- estimation and system identification
- optimisation
- stochastic systems

The PhD scholarship is available for three years and is currently at $A 30 600. Applicants must satisfy the course eligibility criteria (http://go.unimelb.edu.au/iqy6), and will be subject to standard University and Melbourne School of Engineering application and vetting procedures.

Interested applicants should send their CV, most recent transcript and short (less than one page) research and motivation statement to Erik Weyer (ewey@unimelb.edu.au) by the 20th of October 2019.

6.10. PhD: Kent State University, USA
Contributed by: Hossein Mirinejad, mirinejad.kent@gmail.com

Fully-funded Ph.D. position in Controls and Autonomous Systems

Multiple fully-funded Ph.D. positions are available within the College of Aeronautics and Engineering at Kent State University, Kent, OH. Students with interest/background in control theory and autonomous systems are welcome to apply. The applications of interest may consist of a wide range of systems from Healthcare to Automotive to Aerospace systems. The expected start date is Spring 2020.

Basic Requirements:
Prospective students should have received their master's degree or will receive it by the end of Fall 2019. They may have background in electrical & computer engineering, mechatronics engineering, or mechanical & aerospace engineering.

Preferred Qualifications:
- Strong background in control systems
- Strong programming skills in MATLAB and Simulink
- Prior experience in modeling, simulation, and control of mechatronic systems
- Prior hands-on experience with hardware-in-the-loop systems

Contact Information:
If interested, please send your cover letter, CV, and transcripts to Dr. Mirinejad (mirinejad.kent@gmail.com). Your CV should include your test scores (TOEFL & GRE), list of publications, and references.

6.11. PhD: City University of Hong Kong, Hong Kong
Contributed by: Ehsan Nekouei, enekouei@cityu.edu.hk

PhD position at the Department of Electrical Engineering, City University of Hong Kong

Description: In this project, we will design privacy-preserving mechanisms to ensure user privacy in smart systems such as smart buildings and intelligent transportation systems. The project will include both theoretical and applied components.

International applicants will be considered for the Hong Kong PhD fellowship scheme which provides an annual stipend of HK$309,600 (approximately US$39,700) and a conference and research-related travel allowance of HK$12,900 (approximately US$1,700) per year for each awardee for a period up to three years. https://cerg1.ugc.edu.hk/hkpfs/index.html

Requirements:
1- An undergraduate or a master degree from an internationally recognized university
2- Strong background in probability theory and control systems
3- Excellent written and oral English language skills
4- Good programming skills
5- A background in dynamic programming and optimal control is a plus

Contact: Please send the following documents to enekouei@cityu.edu.hk and indicate in the subject "PhD Application"
1- Your CV
2- One-page research statement and motivation
3- A copy of your transcripts

6.12. PhD: University of Strathclyde, Scotland
Contributed by: Manuela Bujorianu, lmbujorianu@gmail.com

PhD studentship on "Autonomous ships systems holistic design"

We are now accepting applications for a fully-funded PhD studentships on Autonomous ships systems holistic design. This project aims at developing and validating a holistic approach for designing the ship or marine systems by combining a number of modelling tools and optimisation techniques facilitating the identification of safe, environmental friendly, reliable and cost efficient autonomous vessels power plants. The funding covers UK/EU student tuition fees and stipend in line with University rates for 36 months. The project is multi-disciplinary requiring skills from various areas including marine systems engineering, systems modelling, safety and reliability engineering, optimisation techniques and computer programming.

The successful candidate will have outstanding knowledge and passion in the above areas and should be able to undertake, complete and disseminate the outcomes of this research in international conferences and high impact research journals. The student will have support from with the MSRC industrial sponsors (DNV GL and RCCL). The student will complement the MSRC research group focusing on autonomous ships research.

PhD position start: no later than February 2020

The PhD study will run in parallel with the Autonomous Shipping Initiative for European Waters (AUTO-SHIP) project funded by EC H2020, which will build and demonstrate in real environment two autonomous vessels for Short Sea Shipping and Inland Water Ways. For discussing the project details, please contact Dr Gerasimos Theotokatos: gerasimos.theotokatos@strath.ac.uk

Further details on the research areas, eligibility and the application process can be found by using the following link: https://bit.ly/2ndWreS

<div align="right">Back to the contents</div>

6.13. PhD: University of Strathclyde, Scotland
Contributed by: Manuela Bujorianu, lmbujorianu@gmail.com

PhD studentship on "Safe e-Navigation and Collision avoidance of autonomous ships"

We are now accepting applications for a fully-funded PhD studentships on Safe e-Navigation and Collision avoidance of autonomous ships. This project aims at developing a simulation model and a decision support system (DSS) for supporting e-navigation on avoiding direct and near-miss collisions and obstacle avoidance. The funding covers UK/EU student tuition fees and stipend in line with University rates for 36 months. The project is multi-disciplinary requiring skills from various areas including naval architecture, marine systems engineering, systems modelling, decision support development techniques and computer programming.

The successful candidate will have outstanding knowledge and passion in the above areas and should be able to undertake, complete and disseminate the outcomes of this research in international conferences and high impact research journals. The student will have support from with the MSRC industrial sponsors (DNV GL and RCCL). The student will complement the MSRC research group focusing on autonomous ships research.

PhD position start: no later than February 2020

The PhD study will run in parallel with the Autonomous Shipping Initiative for European Waters (AUTO-SHIP) project funded by EC H2020, which will build and demonstrate in real environment two autonomous vessels for Short Sea Shipping and Inland Water Ways. For discussing the project details, please contact Dr Gerasimos Theotokatos: gerasimos.theotokatos@strath.ac.uk

Further details on the research areas, eligibility and the application process can be found by using the following link: https://bit.ly/2ndYoYK

<div align="right">Back to the contents</div>

6.14. PhD: Institute of Automation Engineering, Germany
Contributed by: Steffi Knorn, steffi.knorn@ovgu.de

The Institute of Automation Engineering in Magdeburg, Germany, is looking for PhD candidates to work on topics related to networked control, industry 4.0 and energy harvesting. Interested students may find details at: https://bit.ly/2m5aUtm

<div align="right">Back to the contents</div>

6.15. PhD: University of Kentucky, USA
Contributed by: Xu Jin, xu.jin@uky.edu

Ph.D. Positions in intelligent control at the University of Kentucky

Ph.D. openings are available beginning Spring 2020 and Fall 2020 in the Department of Mechanical Engineering at the University of Kentucky, Lexington, KY, USA, on the topics of intelligent control. Our group's focus is on adaptive control and iterative learning control with applications to multiagent systems, constrained formation systems, robot manipulation systems, and cyber-physical systems. More research details can be found on Dr. Xu Jin's website: https://www.engr.uky.edu/directory/jin-xu, and the external links included.

The positions include stipend, health care, and tuition support. The offers are valid for two years, and renewable for additional years based on performance of the students.

Qualifications: The applicant must have a strong background in mathematics, control systems, and/or robotics. Applicants with experience in mathematical analysis, Matlab numerical simulations, hands-on experiences on robotic systems, with a willingness to grow their knowledge in these areas, are encouraged to apply. The applicant must demonstrate competent analysis, experimental skills, and programming ability.

Dates: Beginning Spring 2020 (1 position) and Fall 2020 (1 position).

How to apply: Applications should be emailed to Dr. Xu Jin at xu.jin@uky.edu, as soon as possible. Please include a full CV, PDFs of relevant publications, and names of at least three references.

6.16. PhD: TU Delft, The Netherlands
Contributed by: Sergio Grammatico, s.grammatico@tudelft.nl

PhD: Data-driven Game-theoretic Control for Complex Systems of Systems

I am looking for 1 talented, outstanding PhD candidate with an M.Sc. degree (or close to completion) in Systems and Control, or Applied Mathematics, Electrical or Mechanical Engineering, or related field, with theoretical background and/or interest in System Theory, Automatic Control, Optimization, Game Theory, and with good command of the English language (knowledge of Dutch is not required).

General project description: The candidate will conduct theoretical and algorithmic research on complex multi-agent systems populated by strategic agents. The research will develop and build upon tools from game theory, monotone and fixed-point operator theory and deep learning. The main application areas are distributed control for smart power grids and multi-vehicle automated driving. The position is in the context of the research project "Game theoretic Control for Complex Systems of Systems" (COSMOS), funded by the European Research Council as ERC Starting Grant.

Conditions of employment: The PhD appointment will be for 4 years. The PhD student will participate in

the training and research activities of the TU Delft Graduate School and of the Dutch Institute of Systems and Control (DISC). The PhD students will receive a competitive salary in accordance with the Collective Labour Agreement for Dutch Universities (CAO), from about 2.3k EUR/month (gross, 1st year) to 2.9k EUR/month (gross, 4th year), possibly from 1.8k EUR/month (after taxes, 1st year) to 2.1k EUR/month (after taxes, 4th year), plus holiday allowance (8% of gross annual income) and end-of-year allowance (8.3% of gross annual income), travel budget, secondary benefits, discounts for health insurance and sport membership.

Applications shall include the following documents:
- curriculum vitae;
- statement of motivation and research interests (up to one page);
- transcripts of all exams taken and obtained degrees (in English);
- names and contact information of up to three references (e.g. project/thesis supervisors);
- up to 3 research-oriented documents (e.g. thesis, conference/journal publication).

Applications or inquires shall be emailed to prof. Sergio Grammatico (s.grammatico@tudelft.nl). The call for applications will remain open until the ideal candidate is found. The starting date is flexible.

6.17. PhD/Postdoc: TU Berlin, Germany
Contributed by: Joerg Raisch, raisch@control.tu-berlin.de

A research position (PhD/Postdoc) is now available at TU Berlin within the Excellence Cluster "Science of Intelligence" (www.scienceofintelligence.de). The goal is to use artificial neural networks to study the relation between network architecture and task properties. The project is supervised by Joerg Raisch (control theory) and Henning Sprekeler (computational neuroscience), and includes a tight collaboration with the lab of John-Dylan Haynes (neuroimaging).

The position is fully funded for 3 years. Salary is commensurate with experience, but should allow a comfortable life in Berlin. Envisaged starting date is December 1. The application deadline is October 10.

For more information about the Sprekeler and Raisch labs, check out our website:
http://www.sprekelerlab.org
http://www.control.tu-berlin.de/

More information on the project and application requirements, and how to apply online can be found here:
https://bit.ly/2nMukDL

6.18. PhD/Postdoc: The University of Bayreuth, Germany
Contributed by: Lars Gruene, lars.gruene@uni-bayreuth.de

At the Chair of Applied Mathematics of the University of Bayreuth, Germany, a 3-year position as scientific assistant (100%, German TV-L E 13) is available within the DFG funded project "Performance Analysis of Distributed and Multi-Objective Model Predictive Control Schemes".

The position is part of the research group of Professor Lars Gruene and is suitable for Postdoctoral Researchers as well as for students holding a Master's degree who want to pursue a PhD in Mathematics.

Candidates should have expertise in at least one of the following topics
- analysis of model predictive control schemes
- multiobjective optimisation
- dissipativity based analysis of nonlinear control systems
- In addition, candidates should have experience in coding mathematical algorithms in MATLAB or C++.

Applications including CV, list of publications (if applicable), copies of certificates, a summary of the Master's thesis and of the PhD thesis (if applicable) and names of potential references should be sent by email as a single PDF file to lars.gruene@uni-bayreuth.de. The position is available immediately, applications are considered until the position is filled. For further information please contact lars.gruene@uni-bayreuth.de.

6.19. Postdoc: Tsinghua-Berkeley Shenzhen Institute, China
Contributed by: Scott Moura, smoura@berkeley.edu

Multiple two-year postdoctoral positions are available at the Smart Grid Lab in Tsinghua-Berkeley Shenzhen Institute (TBSI), located in Shenzhen, China. The successful candidate will help to conduct research on power and energy systems, participate in engineering projects, and co-advise graduate students.

Qualifications
• A Ph.D. degree in electrical engineering, ORIE, civil and environmental engineering, economics, mathematics, or another related area
• With a strong background in the area of power and energy systems, or in optimization/economics/machine learning/game theory and feel interested in their applications in power and energy systems
• Experience of publishing high quality research papers
• Strong skills of speaking and writing English

Salary, Subsidies, and Benefits
The income of a postdoc will be around 300K RMB per year (pre-tax), including the following components
• Obtain relevant salary and housing arrangement according to TBSI Postdoc Announce and related regulations in Shenzhen
• TBSI postdoctoral allowances of 100,000 RMB per year (pre-tax)
• Application-based living subsidies of 120,000 RMB (tax free) per year for postdocs passing proposal-term and mid-term.

Moreover, if one continues to conduct scientific research in Shenzhen after the postdoc period, he/she may be eligible to apply for the Shenzhen High-Level Talents program to receive a 1.6M RMB subsidy in 5 years, and apply for a research grant of 300,000 RMB for three years.

About TBSI
• TBSI is a joint research institute by Tsinghua University and UC Berkeley. It recruits master and Ph.D. students who will receive Tsinghua degrees. Most courses are taught in English

• TBSI faculty members include full-time PIs and part-time PIs from Tsinghua Beijing campus and UC Berkeley. All full-time PIs at TBSI are also tenured or tenure-track faculty members of Tsinghua University
• For more information, please see https://www.tbsi.edu.cn/en/

Possible Advisors
• The successful applicant may work with Prof. Yinliang Xu, Prof. Xuan Zhang, or Prof. Ye Guo. Click links under these names to see their webpages.
• The successful applicant will also work with a co-advisor at UC Berkeley.
How to apply
• Applicants should send their curriculum vitae, including their education, a publication list, and names of at least three references, to Prof. Ye Guo at ye-guo@sz.tsinghua.edu.cn or another potential advisor they want to work with.

6.20. Postdoc: Georgia Tech, USA
Contributed by: Joshua Weitz, jsweitz@gatech.edu

Postdoctoral Position in Virus-Microbe Dynamics and Control, Georgia Tech A postdoctoral scientist position (2+ years) is available in Prof. Joshua Weitz's group in the School of Biological Sciences at the Georgia Institute of Technology.

The postdoc will lead efforts to develop analytic and computational models of virus-microbe interactions with an emphasis on viral control of microbial population and evolutionary dynamics, both in an environmental and therapeutic context. Preferences for applicants include: (1) PhD in quantitative biosciences, applied mathematics, control theory, ecology, evolutionary biology, physics, or related area; (2) Strong quantitative & computational skills; (3) Excellent communication skills; (4) Interest and experience in model-data integration.

Position to start approximately January 2020; start date negotiable, includes competitive salary, benefits, collaborative opportunities in the USA/France, and travel budget. Screening of applicants will begin immediately and applications will be considered until position is filled.

To apply, please e-mail Joshua Weitz (jsweitz@gatech.edu) with a curriculum vitae (CV), a one page statement of how your research interests are related to this position, and contact information for 3 references. More information on the group's research can be found at http://ecotheory.biology.gatech.edu. Prof. Weitz has courtesy appointments in both the School of Physics and the School of Electrical and Computer Engineering at Georgia Tech.

Georgia Tech is located in Atlanta, GA in the Midtown neighborhood - a vibrant, urban community: http://www.midtownatl.com/. Georgia Tech is a unit of the University System of Georgia and an Affirmative Action/Equal Opportunity Employer.

6.21. Postdoc: Gipsa Lab, Grenoble-INP, France
Contributed by: Julie Perrin, julie.perrin@gipsa-lab.grenoble-inp.fr

Post-Doc Position on Traffic models in large-scale urban networks Gipsa-lab is a CNRS research unit joint with Grenoble-INP (Grenoble Institute of Technology), and Université Grenoble Alpes (Grenoble Alpes University). It has agreements with INRIA, Observatoire des Sciences de l'Univers de Grenoble. With 350 people, including about 150 doctoral students, Gipsa-lab is a multidisciplinary research unit developing both basic and applied researches on complex signals and systems. Gipsa-lab is internationally recognized for the research achieved in Automatic Control, Signal and Images processing, Speech and Cognition. The research unit develops projects in the strategic areas of energy, environment, communication, intelligent systems, Life and Health and language engineering. Thanks to the research activities, Gipsa-lab maintains a constant link with the economic environment through a strong partnership with companies. Gipsa-lab staff is involved in teaching and training in the various universities and engineering schools of th e Grenoble academic area (Grenoble Alpes University). Research is achieved in Gipsa-lab thanks to 12 research teams organized in 3 departments : Automatic control, Images-signal, Speech-cognition. Gipsa-lab regroups 150 permanent staff and around 250 no-permanent staff (Phd, post-dotoral students, visiting scholars, trainees in master. . .).

Scale-FreeBack is an ERC hosted by the CNRS. The project will be conducted within the NeCS group (a joint CNRS (GIPSA-Lab)-INRIA team), at Grenoble France. Scale-FreeBack is a project with the overall aim of developing holistic scale-freeccc control methods of controlling complex network systems in the widest sense, and to set the foundations for a new control theory dealing with complex physical networks with an arbitrary size, see scale-freeback.eu

This research proposal deals with the problem of modeling and validating urban traffic network at an aggregated level. In this framework a field of research concentrates on two dimensional PDE models while another group of works concentrates on the notion of Macroscopic Fundamental Diagram (MFD).

Several specific task will be expected:
- Extend our previous model to a 2-D multilayer PDE model for a large-scale urban traffic systems based on the 2D-LWR model ideas
- Starting from real data, recover the function in the PDE that models the flux function and the interaction between cars using inverse problems.
- Validate the model using a microscopic simulator
- Perform experiments in our micro-simulator to verify the aggregation process, and the validity of the detailed model.

Field tests and other realistic simulations to validate the theory will be performed using the equipment available at the Grenoble Traffic Lab center (see GTL), that is currently being extended at the level of city-center of Grenoble (GTL-Ville project) where we are collecting traffic related data and constructing a real-time data-collection systems. The algorithms developed in this work, will be integrated into the GTL-Ville project. Experiments that cannot be realized in vivo, will be tested on a microscopic traffic simulator replicating the full complexity of the Grenoble urban network.
To apply, please click on the following link:
https://emploi.cnrs.fr/Offres/CDD/UMR5216-ALLBEL-015/Default.aspx

6.22. Postdoc: French Aerospace Lab, France
Contributed by: Thach N. Dinh, ngoc-thach.dinh@lecnam.net

Postdoc opportunity on automatic control/control theory

The Conservatoire National des Arts et Métiers (CNAM) and the French Aerospace Lab (ONERA) are now recruiting a postdoc for 18 months from January 2020. The postdoc is co-funded by the Paris Ile de France Region (RFSI grant 2019) and ONERA. The selected candidate with priority for EU citizens will be supervised by Thach Dinh, Julien Marzat and Tarek Raissi.

For more details about job description, please follow this link:
https://bit.ly/2kdbAMv
or please contact us directly at ngoc-thach.dinh@lecnam.net

6.23. Postdoc: Technion, Israel
Contributed by: Daniel Zelazo, dzelazo@technion.ac.il

Post-Doctoral Position in Distributed Power Generation

The Cooperative Networks and Controls Lab together with the Turbomachinery and Heat Transfer Laboratory at the Faculty of Aerospace Engineering at the Technion-Israel Institute of Technology, is seeking a motivated post-doctoral researcher to begin work immediately on an Israel Department of Energy funded project. The successful candidate will have a strong background in distributed and non-convex optimization. Priority will be given to researchers also familiar with the basic principles of economic dispatch and unit commitment problems for power systems.

Project Description: Optimal Economic Dispatch of CHP Micro-Gas Turbines in Smart Grids

A core goal of this project is to tighten the gap between theoretical works in distributed optimization to real-world implementations for distributed power generating systems. We are focusing on designing optimal economic dispatch algorithms to manage an array of micro-gas turbines in a smart-grid configuration. A unique feature of this project is the tight collaboration between researchers in distributed optimization and control with those in turbomachinery. Work will include both theoretical explorations and hardware-in-the-loop simulations with micro-gas turbines.

Interested applicants should contact Prof. Daniel Zelazo (dzelazo@technion.ac.il) and include the following information:
- Cover letter
- CV with publication list
- Up to 3 relevant publications

6.24. Postdoc: TU Delft, The Netherlands
Contributed by: Sergio Grammatico, s.grammatico@tudelft.nl

PostDoc: Data-driven Game-theoretic Control for Complex Systems of Systems

I am looking for 1 talented, outstanding PostDoc researcher with a PhD degree (or close to completion) in Systems and Control, or Applied Mathematics, Electrical or Mechanical Engineering, or related field, with theoretical background and/or interest in System Theory, Automatic Control, Optimization, Game Theory, and with good command of the English language (knowledge of Dutch is not required).

General project description: The candidate will conduct theoretical and algorithmic research on complex multi-agent systems populated by strategic agents. The research will develop and build upon tools from game theory, monotone and fixed-point operator theory and deep learning. The main application areas are distributed control for smart power grids and multi-vehicle automated driving. The position is in the context of the research project "Game theoretic Control for Complex Systems of Systems" (COSMOS), funded by the European Research Council as ERC Starting Grant.

Conditions of employment: The PD appointment will be for 3 years. The researcher will receive a competitive salary in accordance with the Collective Labour Agreement for Dutch Universities (CAO), from about 2.9k EUR/month (gross, 1st year) to 3.2k EUR/month (gross, 3rd year), possibly from 2.5k EUR/month (after taxes, 1st year) to 2.7k EUR/month (after taxes, 3rd year), plus holiday allowance (8% of gross annual income) and end-of-year allowance (8.3% of gross annual income), travel budget, secondary benefits, discounts for health insurance and sport membership.

Applications shall include the following documents:
- curriculum vitae;
- statement of motivation and research interests (up to one page);
- transcripts of all exams taken and obtained degrees (in English);
- names and contact information of up to three references (e.g. project/thesis supervisors);
- up to 3 research-oriented documents (e.g. thesis, conference/journal publication).

Applications or inquires shall be emailed to prof. Sergio Grammatico (s.grammatico@tudelft.nl). The call for applications will remain open until the ideal candidate is found. The starting date is flexible.

6.25. Postdoc: University of Michigan, USA
Contributed by: Dawn Tilbury, tilbury@umich.edu

Postdoc in Control and Robotics at Univ. of Michigan

We are looking for a postdoc in the area of control and robotics for manufacturing systems. The postdoc would work with Professors Dawn Tilbury and Kira Barton in the Mechanical Engineering Department and the Robotics Institute at the University of Michigan. The research will bring together concepts from data analytics, machine learning, formal verification, modeling and control to improve the overall performance of manufacturing systems along the dimensions of productivity, quality, flexibility, and sus-

tainability. More information on the types of projects related to this research can be found at https://sdc-mfg.engin.umich.edu/

The postdoc will work with a small industrial testbed at the University of Michigan that includes augmented and virtual reality software/hardware, collaborative robots, CNC machines, and off-the-shelf 3D printers; all instrumented with industrial-quality sensors and controllers. Multiple graduate and undergraduate students work in the group, and there is good collaboration with industrial partners. Funding comes from NSF and industry. Required qualifications include: a recent PhD in Mechanical or Electrical Engineering (or a related field), experience in control systems (theory and/or application), and excellent oral and written communication skills. Desirable qualifications include: experience with collaborative robotics, experience with industrial control systems; experience with manufacturing systems, experience with Big Data and/or Cloud Computing, and programming experience with C/C++/Java.

The University of Michigan is committed to effective mentoring and training of postdoctoral researchers, to enable them achieve their career goals. More information on UMich postdoc programs can be found at: http://www.rackham.umich.edu/postdoctoral

Interested candidates should send their CV and a cover letter describing their specific interest and how their background fits the qualifications to Prof. Dawn Tilbury, ¡tilbury@umich.edu¿ and Prof. Kira Barton ¡bartonkl@umich.edu¿ preferably before November 20. Start date could be as early as January 1, or later in the spring.

6.26. Faculty: Lafayette College, USA
Contributed by: Yih-Choung Yu, yuy@lafayette.edu

Tenure-Track Position in Electrical and Computer Engineering at Lafayette College

The Department of Electrical and Computer Engineering (ECE) at Lafayette College invites applications for a tenure-track position at the rank of assistant professor beginning in July 2020. The department is especially interested in candidates with potential for interdisciplinary connections in areas including (but not limited to) embedded systems, robotics, computer architecture, the internet of things, e-Health, cyber-physical systems, and autonomous systems.

The department is seeking candidates with a passion for undergraduate teaching and mentoring. Candidates would be expected to teach courses across the digital stem of the ECE curriculum and mentor capstone design projects. Evidence of a promising scholarly trajectory in the applicant's area(s) of expertise is expected. Candidates must demonstrate the potential to establish a research program that can engage undergraduates and result in the publication of scholarly work in peer-reviewed venues.

Lafayette College has offered engineering programs for over 150 years. Since their inception, the programs have emphasized close interaction between students and faculty. This is accomplished via innovative teaching, opportunities to engage in research, completion of hands-on design projects and through nationally recognized study abroad programs. In recent years the engineering programs have been ranked in the top 15 in the nation by U.S. News and World Report among undergraduate-focused institutions. In addition to

an exceptional ECE program, a new Interdisciplinary Engineering program will be offered beginning in the fall of 2019. Electrical and Computer Engineering faculty will play a central role in this program enabling students to focus in the areas of robotics, bioengineering, and environment and energy.

Applicants should possess a Ph.D. in Electrical and/or Computer Engineering, or a related field. To apply, please submit application materials, including a cover letter, curriculum vitae, a statement of teaching interests, a brief research plan, and three letters of recommendation, online at: http://apply.interfolio.com/66337. In your cover letter, please address how your scholarship, teaching, mentoring, and/or community service might support Lafayette College's commitment to diversity and inclusion as articulated in the College's diversity statement provided below and available online (https://about.lafayette.edu/diversity-statement/). Review of applications will begin on October 1, 2019 and will continue until the position is filled.

About Lafayette College:

Located within 75 miles from both New York City and Philadelphia, Lafayette College is a small, highly selective undergraduate institution emphasizing superior education in engineering and the liberal arts. The ECE department features small class sizes, hands-on laboratory experiences, and strong support for faculty research and professional development.

Lafayette College is deeply committed to creating a diverse community, one that is inclusive and responsive, and is supportive of each and all of its faculty, students, and staff. All members of the College community share in the responsibility for creating, maintaining, and developing a learning environment in which difference is valued, equity is sought, and inclusiveness is practiced. In cultivating this community, the Engineering programs at Lafayette have taken a national leadership role in diversity as evidenced by recently being recognized for its commitment to the Engineering Deans Diversity Pledge. Moreover, the ASEE currently lists Lafayette's engineering programs among the top 10 in the nation for women on the faculty and among the top 20 for Bachelor's degrees awarded to women. Lafayette College is an equal opportunity employer and encourages applications from women and minorities.

6.27. Faculty: University of Florida, USA
Contributed by: Amor Menezes, amormenezes@ufl.edu

Chair and Professor - Mechanical and Aerospace Engineering, University of Florida

Applications and nominations are invited for the position of Chair and Professor of the Department of Mechanical and Aerospace Engineering (MAE) in the Herbert Wertheim College of Engineering at the University of Florida (UF), the flagship campus of the State of Florida University system. MAE is the largest degree-granting unit at UF. The Department has 47 tenure-track and 18 non-tenure track faculty members, approximately 500 graduate students, 1800 undergraduate students and $12.5 million in annual research expenditures. BS, MS, and PhD degrees are offered in both Mechanical Engineering and Aerospace Engineering. MAE is home to more than a dozen student societies, and provides exceptional dedicated facilities and financial support for our student-led design/build/compete organizations that routinely capture top placement at national and international competitions. Traditional strengths in solid mechanics and design, thermal fluid systems, and dynamics and controls are leveraged in many interdisciplinary and cutting-edge efforts that include autonomous systems, multiphase turbulent systems, experimental me-

chanics, advanced manufacturing, novel energy systems, computational methods, soft-matter engineering, and aerospace technologies and systems.

In addition to overseeing the operational management of the Department, responsibilities of the Chair include: (1) creating a compelling vision for the advancement of the department to include increasing existing strengths, fostering new disciplines in emerging fields within MAE, and strengthening interdisciplinary efforts across the College and University; (2) facilitating both the professional and scholarly growth of the faculty, particularly the junior faculty; (3) ensuring cutting-edge education is provided to all trainees (undergraduate, graduate, postdoctoral and researchers); (4) enhancing the working partnership with the leaders of UF colleges and departments, administrations, industry and government agencies along with facilitating knowledge and technology transfer with industry; (5) recruiting a diverse faculty and student body; (6) and increasing sponsored research, private and external funding opportunities for the department, and cultivating corporate, governmental, alumni, and other private donations.

Qualifications: An earned Ph.D. and research and teaching experience in mechanical or aerospace engineering, or a closely related field is required. In addition, we are seeking an individual who: is a distinguished scholar in their field of research, with demonstrated academic credentials sufficient for appointment at the Full Professor level; is committed to high academic standards; is skilled in the development and expansion of sponsored research programs; is experienced in enhancing the representation and success of underrepresented populations; has excellent leadership, management and interpersonal skills as well as written and oral communication skills; and encourages open, collaborative and inclusive problem solving.

Application Instructions: All candidates must apply through the UF Jobs website:
http://apply.interfolio.com/67833, reference position 52063.
The Search Committee will begin reviewing applications on October 1, 2019 and will continue accepting applications until the position is filled. For further questions, you may contact the search committee chair, Dr. Nishida at nishida@eng.ufl.edu.

<div align="right">

Back to the contents

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6.28. Faculty: Purdue University, USA
Contributed by: Shaoshuai Mou, mous@purdue.edu

The School of Aeronautics and Astronautics at Purdue University invites applications for a tenured or tenure-track assistant or associate professor. Purdue University seeks to attract exceptional candidates with interests and expertise in autonomy and control that will support the School's Unmanned Aerial Systems (UAS) Research and Test Facility. This position is aligned with the Autonomous and Connected Systems Purdue Engineering Initiative. Expertise in artificial intelligence and learning from an aerospace engineering perspective will be an asset. The successful candidate must hold a Ph.D. degree in Aerospace Engineering or a related discipline and demonstrate excellent potential to build an independent research program at the forefront of their field, as well as potential to educate and mentor students. The successful candidate will conduct original research, advise graduate students, teach undergraduate and graduate level courses, and perform service both at the School and University levels.

The School of Aeronautics and Astronautics at Purdue University is consistently recognized as an international leader in the quality of its educational programs, along with the innovation and depth of its graduate

research program and its technology and workforce impact on the aerospace industry. With approximately 900 undergraduate students, 600 graduate students, and 37 faculty members, the School is among the top six programs in the US. Purdue Engineering takes pride in being at the pinnacle of excellence at scale. Additional information may be found at https://engineering.purdue.edu/AAE.

The School is an integral part of Purdue's College of Engineering. Purdue Engineering is one of the largest and top-ranked engineering colleges in the nation (8th for graduate programs and #9 for undergraduate per USWNR, 2019) and renowned for top-notch faculty, students, unique research facilities, and a culture of collegiality and excellence. The College goal of Pinnacle of Excellence at Scale is guiding strategic growth in new directions, by investing in people, exciting initiatives, and facilities.Purdue and the College of Engineering have a Concierge Program that provides dual career assistance and relocation services.

Submit applications online at https://bit.ly/2m99T3d , including curriculum vitae, teaching and research plans, and names of five references. For information/questions regarding applications contact the Office of Academic Affairs, College of Engineering, at coeacademicaffairs@purdue.edu. Review of applications will begin on October 1, 2019 and will continue until position is filled. A background check will be required for employment in this position.

6.29. Faculty: University of British Columbia, Canada
Contributed by: Ryozo Nagamune, nagamune@mech.ubc.ca

Faculty: University of British Columbia, Canada
Assistant Professors in Advanced Manufacturing and Automation

The Department of Mechanical Engineering in the Faculty of Applied Science at the University of British Columbia (Vancouver campus) seeks outstanding individuals for up to 3 tenure-track positions at the rank of Assistant Professor in the field of advanced manufacturing. The successful candidates will be appointed in the Department of Mechanical Engineering or jointly appointed in the Department of Materials Engineering. The starting date of the position will be July 2020, or as soon as possible thereafter. We are seeking dynamic, emerging leaders in all areas related to advanced manufacturing. This search primarily focuses on intelligent manufacturing systems and robotics, manufacturing automation, and additive manufacturing. Candidates with expertise in manufacturing system design and the application of artificial intelligence in manufacturing automation are particularly encouraged to apply. Relevant industrial experience is an asset.

The Faculty of Applied Science at UBC has recently celebrated its 100th anniversary. Over this period, the Faculty has distinguished itself with excellence in teaching and research. The Faculty has embarked on the creation of a new, undergraduate program in Manufacturing Engineering that is jointly run by the Department of Mechanical Engineering and Department of Materials Engineering.

Applicants must have either a demonstrated track record or possess a clear potential to achieve excellence in research and teaching and must be willing to work with, or have experience working with industry, to implement innovative solutions for manufacturing challenges. The successful candidates will be expected to develop an independent, internationally recognized research program, teach at the undergraduate and

graduate levels, supervise graduate students at the Masters and Ph.D. levels and provide service to the University and the community.

The candidate will hold a Ph.D. degree, or equivalent, in Mechanical Engineering, Manufacturing Engineering, or a closely related field, and will be expected to register as a Professional Engineer in British Columbia. Undergraduate teaching will primarily take place in the new Manufacturing Engineering undergraduate program while research will be undertaken within the department(s). Further information on the Faculty of Applied Science is available at https://apsc.ubc.ca/prospective-faculty.

Applicants should submit a curriculum vitae, a short statement of research and teaching interests and accomplishments, including information on how their research and/or teaching contribute to a diverse academic environment, and the names and addresses (e-mail included) of four referees. Applications must be submitted online at http://www.hr.ubc.ca/careers-postings/faculty.php (Job ID 34765).

Review of applications will begin on October 15, 2019 but applications will be accepted until the positions are filled. After October 15, 2019, please send your application to exec.asst@mech.ubc.ca. All positions are subject to final budgetary approval.

6.30. Faculty: The University of Texas at San Antonio, USA
   Contributed by: Ahmad F. Taha, ahmad.taha@utsa.edu

Faculty Positions in Power/Energy Systems or Hardware Security in Electrical and Computer Engineering

The Department of Electrical and Computer Engineering at the University of Texas, San Antonio (UTSA) invites applications for one tenure-track/tenured level position starting Fall 2020 at the Assistant, Associate, or Full Professor level in Power/Energy Systems or Hardware Security. Outstanding candidates from all research areas of Power/Energy Systems and Hardware Security will be considered. Tenure appointments are contingent upon Board of Regents approval.

The Department of Electrical and Computer Engineering offers the B.S., M.S., and Ph.D. degrees supporting a dynamic and rapidly growing program. The research activities and experimental facilities have been well supported by various federal research and infrastructure grants. See http://www.ece.utsa.edu for details. The Department has approximately 30 faculty members who come from some of the finest institutions in the country, and includes NSF CAREER Award winners, Fellows of the IEEE and AAAS, Distinguished University Professors, and a member of the National Academy of Inventors. Many serve in national leadership roles in technical societies such as the IEEE, and have industry experience to complement their academic backgrounds. The Department is committed to creating an environment that affirms diversity across a variety of dimensions, including ethnicity/race, gender identity and expression.

UTSA is one of the 13 University of Texas System's Campuses situated in the City of San Antonio. Over the last ten years the College of Engineering at UTSA has experienced sustained growth in terms of student population, number of faculty, and research awards. The College includes four engineering departments: Civil and Environmental Engineering, Mechanical Engineering, Biomedical Engineering and Chemical Engineering program, and Electrical and Computer Engineering. The College of Engineering hosts several

research centers including the Texas Sustainable Energy Research Institute and the Open Cloud Institute. The University enjoys strong ties with other research institutions and companies located in San Antonio. These include Southwest Research Institute, CPS Energy, and the UT Health at San Antonio.

Applicants should submit their application packages to:
http://jobs.utsa.edu/postings/13691. Application packages must contain the following information:
1. Cover letter indicating: (a) Position and rank of interest; (b) Research area of interest: Power/Energy Systems OR Hardware Security
2. Curriculum Vitae (CV)
3. A statement of research interests,
4. A statement of teaching interests,
5. A discussion on the role diversity and inclusion play in an academic environment, included in both research and teaching statements.

All applications received by November 8, 2019 will be given first preference for consideration. Applications received after that date will be reviewed only if the position is not filled. Applicants selected for interviews must show proof that they will be eligible and qualified to work in the United States by the time of hire. Incomplete applications will not be reviewed.

Inquiries about the position should be directed to David Akopian, committee chair, at david.akopian@utsa.edu . UTSA is an Affirmative Action/Equal Opportunity employer. Women, minorities, veterans, and individuals with disabilities are strongly encouraged to apply

6.31. Faculty: University of California, Riverside, USA
Contributed by: Fabio Pasqualetti, fabiopas@engr.ucr.edu

Faculty Position in Robotics (Open-Rank)

The Department of Mechanical Engineering (ME) in the Bourns College of Engineering (BCOE) at the University of California, Riverside (UCR) invites applications as part of our ongoing efforts to build upon UCR's current strengths in Control, Robotics, Autonomy, and Machine Intelligence, as well as to foster innovative new cross-disciplinary initiatives, both within and outside of BCOE (e.g., with UCR's School of Medicine, or the College of Natural & Agricultural Sciences).

We invite applications across the broad area of Robotics, with particular emphasis on medical robotics, human-robot interaction, micro/soft-robotics, and distributed & autonomous systems. We are especially interested in applicants who will bring complementary expertise and create new synergies among the disciplines of Mechanical Engineering, Electrical Engineering, and Computer Science. Successful candidates will have a proven record of, or show exceptional promise for developing a vibrant, externally-funded research program, as well as a portfolio of high quality teaching in Controls & Robotics at the undergraduate and graduate levels.

A Ph.D. in ME or a closely related field is required at the time of employment. The successful candidate will receive primary appointment within ME; however, opportunity may exist for additional affiliations with

other departments and programs at UCR, as appropriate. Salary will be competitive and commensurate with qualifications and experience. Applications may be submitted using the link found on the ME website (https://www.me.ucr.edu/about/employment.html). Applications submitted by any other means will not be reviewed. Full consideration will be given to applications received by November 15, 2019. Inquiries should be directed to mesearch@engr.ucr.edu.

UCR is a world-class research university with an exceptionally diverse undergraduate student body. Its mission is explicitly linked to providing routes to educational success for underrepresented and first-generation college students. A commitment to this mission is a preferred qualification.

The University of California is an Equal Opportunity/Affirmative Action Employer. All qualified applicants will receive consideration for employment without regard to race, color, religion, sex, sexual orientation, gender identity, national origin, age, disability, protected veteran status, or any other characteristic protected by law.

6.32. Faculty: Institute of Science and Technology, Austria
Contributed by: Institute of Science and Technology, professors@ist.ac.at

Assistant Professor (tenure-track) and Professor positions in computer science

We invite applications in all areas of computer science for several open positions. Female researchers are strongly encouraged to apply. In addition, we especially welcome applications in Data science, including statistics, optimization, machine learning, bioinformatics, computational science, numerical methods, simulation, and visualization, Computer systems, including distributed and operating systems, databases, networks, and robotics

We offer:
- Highly international and interdisciplinary research environment
- State-of the art facilities and a wide range of scientific support services
- Competitive start-up package and salary
- Guaranteed annual base funding
- Support for acquiring third-party funds
- Wide portfolio of career support
- Child-care facilities and support on campus

IST Austria (www.ist.ac.at) is an international institute dedicated to basic research and graduate education in the natural, mathematical, and computational sciences. The Institute fosters an interactive, collegial, and supportive atmosphere, sharing space and resources between research groups whenever possible, and facilitating cross-disciplinary collaborations. Our PhD program involves a multi-disciplinary course schedule and rotations in research groups. We hire scholars from diverse international backgrounds and our working language is English. The campus of IST Austria is located close to Vienna, one of the most livable cities in the world.

Assistant professors receive independent group leader positions with an initial contract of six years, at the

end of which they are reviewed by international peers. If the evaluation is positive, an assistant professor is promoted to a tenured professor. Candidates for tenured positions are distinguished scientists in their respective research fields and have at least six years of experience in leading a research group.

Please apply online at: www.ist.ac.at/jobs/faculty/

The closing date for applications is October 31, 2019. IST Austria values diversity and is committed to equal opportunity.

6.33. Faculty: KU Leuven, Belgium
Contributed by: Jan Swevers, jan.swevers@kuleuven.be

Faculty: Department Mechanical Engineering, KU Leuven, Belgium

KU Leuven has a full-time academic vacancy on the subject Machine Design, Automation, and Control in the Department of Mechanical Engineering at the Geel campus: http://iiw.kuleuven.be/english/geel. We are looking for internationally oriented candidates with an excellent interdisciplinary research record, with educational competencies within the field of mechanical design and project-based learning, and strongly focused on applied research in collaboration with industry. The appointment will be made within the Department of Mechanical Engineering and Faculty of Engineering Technology of the Science, Engineering and Technology Group of KU Leuven.

The research group of the Department of Mechanical Engineering on the campus in Geel focuses on two areas of application: the food industry, agriculture and horticulture on the one hand, and thermal energy systems on the other. In both domains, the campus can rely on a long tradition of practice-based research and services (both regional and European). As a result, high-quality research infrastructure is available, as well as an extensive international network, connections with companies and non-profit organizations and a supportive working environment.

For more information, visit:
https://www.kuleuven.be/personeel/jobsite/jobs/55037624

6.34. Faculty: Royal Institute of Technology, Sweden
Contributed by: Lei Feng, lfeng@kth.se

Assistant Professor in Mechatronics KTH with Focus on Robot Design
Application Deadline: October 18th, 2019.

KTH Royal Institute of Technology in Stockholm has grown to become one of Europe's leading technical and engineering universities, as well as a key center of intellectual talent and innovation. We are Sweden's largest technical research and learning institution and home to students, researchers and faculty from around the world. The subject of this opening position includes principles, methods and tools for the integration and optimization of mechatronic systems realized with software controlled mechanical systems,

electronics, sensors and actuators.

The employment includes research and education. Research activities involve conducting research, initiating new research, pursuing research applications, and establishing new collaborative research. The multidisciplinary nature of the subject involves collaboration between departments and schools at KTH. The Assistant Professor will work in subject areas such as Mechatronic product development, robotics, control systems techniques such as dynamics and motion control, optimal control methods, dynamic programming, predictable model control and control methods based on artificial intelligence.

More details of the position and KTH, as well as how to apply the position, can be found in the website.

https://www.kth.se/en/om/work-at-kth/lediga-jobb/what:job/jobID:260104/where:4/

We look forward to seeing your applications!

6.35. Faculty: University of Michigan, USA
Contributed by: Jing Sun, jingsun@umich.edu

Faculty: University of Michigan-Ann Arbor, Naval Architecture and Marine Engineering

The Department of Naval Architecture and Marine Engineering at the University of Michigan, Ann Arbor, invites applications for a full-time, tenure track, faculty position at the assistant, associate, or full professor level. The department seeks candidates within the following areas of research emphasis with applications in marine platforms and vessels: control and dynamics, autonomous vehicles, marine robotics, electrification, condition monitoring, distributed systems, sensing, and navigation. Consideration will also be given to applicants with expertise and robust research programs in marine structures, marine design, fluid-structure interaction, and marine engineering.

Candidates are required to have a doctoral degree in a relevant discipline. The successful candidate is expected to establish an independent research program and to contribute effectively to the department's undergraduate and graduate teaching programs. The College of Engineering is especially interested in candidates who can contribute, through their research, teaching and/or service, to the diversity and excellence of the academic community.

Application Materials: Applicants should send a curriculum vitae, a brief statement of present and future research plans, a statement of teaching experience and interests, and the names of at least three persons who can provide letters of recommendation. Materials should be submitted to https://bit.ly/2m1g614

Applications will be considered as they are received. However, for full consideration, applications must be received by December 1, 2019. Michigan Engineering provides scientific and technological leadership to the people of the world. We seek to improve the quality of life by developing intellectually curious and socially conscious minds, creating collaborative solutions to societal problems, and promoting an inclusive and innovative community of service for the common good.

Please send any comments or inquiries to NAME-fac-search@umich.edu

Back to the contents

6.36. Faculty: Iowa State University, USA
Contributed by: James McCalley, jdm@iastate.edu

Iowa State University open faculty position

The Department of Electrical and Computer Engineering at Iowa State University invites highly qualified, especially underrepresented, scholars to apply for a tenure-track or tenured faculty position at Assistant, Associate, or Full Professor levels. The desired area of expertise for this position is within the domains of optimization, dynamics, autonomy, and power systems. Further information, including instructions for applying, are located at https://bit.ly/2kp7LUm

The Department of Electrical and Computer Engineering at Iowa State University is home to 54 faculty, and is associated with 11 research centers and institutes. The department boasts 18 IEEE Fellows, 21 National Science Foundation "Career" awardees, over $15M in research expenditures (FY18), and one of the largest ECpE enrollments in the nation. For more information about our department's engineering programs, go to www.ece.iastate.edu.

Iowa State University is classified as a Carnegie Foundation Doctoral/Research University-Extensive, a member of the Association of American Universities (AAU), and ranked by U.S. News and World Report as one of the top public universities in the nation. More than 36,000 students are enrolled and are served by over 6,200 faculty and staff.
The City of Ames, Iowa is highly recognized for its outstanding schools, amenities, environmental commitment, and quality of life, as indicated at https://www.cityofames.org/about-ames/awards-accolades-achievements. Iowa State University is an Equal Opportunity/Affirmative Action employer. All qualified applicants will receive consideration for employment without regard to race, color, age, religion, sex, sexual orientation, gender identity, genetic information, national origin, marital status, disability, or protected veteran status and will not be discriminated against. Inquiries can be directed to the Office of Equal Opportunity, 3410 Beardshear Hall, 515 Morrill Road, 515 294-7612, email eooffice@iastate.edu.

Back to the contents

6.37. Faculty: University of Tehran, Iran
Contributed by: Hamed Kebriaei, kebraei@ut.ac.ir

The University of Tehran offers up to three tenure track faculty member position in the field of Control in School of Electrical and Computer Engineering (ECE).
University of Tehran (UT) is the first modern and highest rank university in Iran. School of ECE, with more than 2000 students, 84 faculty members, 80 research Laboratories is the largest school in UT. ECE-UT holds the "Control and Intelligent Processing Center of Excellence" of the country and the Control department of ECE attracts the highest ranked students of the country in the field.

The control group is active in some interdisciplinary areas like, Machine Learning, Networks, Biological Systems, Robotics, Cognitive Science, and Industrial Automation. For more information about the control

department of ECE you can visit: http://ece.ut.ac.ir/en/control

The applicants must hold a PhD degree from renowned international universities and have a solid background in Control Systems with a strong academic records and proved world class capabilities in research. The areas of interest include but not limited to: Hybrid/Switched Control Systems, Learning Control Systems, Data Driven Control Systems, Control of Network Systems and Automation Control Systems with application areas such as: Systems Biology, Energy, Cyber Physical Systems, and Complex Networks.

As a faculty member your role will be to:
-Perform fundamental and applied research at the forefront of the systems and control domain;
-Publish in renowned scientific journals and conferences;
-Set up and teach inspiring courses and lab projects in the BSc, MSc and PhD programs at ECE-CS;
-Supervise PhD and MSc students as well as BSc student projects;
-Maintain and expand an effective network of cooperation partners in academia, institutes and industry
-Contribute to acquiring funding for research projects from (inter)national research funding agencies.

What is required in an application pack?
- Cover letter stating your interest in the faculty position in Control department
- A full academic CV,
- Your statement of purpose,
- Details of three references.

Interested candidates should send their application pack for consideration to: Dr. Hamed Kebriaei: kebriaei@ut.ac.ir

6.38. Faculty: University of Louisville, USA
Contributed by: Dan Popa, dan.popa@louisville.edu

Cluster Hire at the University of Louisville

The Louisville Automation and Robotics Institute (LARRI) at UofL is a new initiative at University of Louisville Speed School of Engineering. The Institute invites applications for cluster hires in FY 2020 including the following open positions:
- Assistant Professor (tenure-track in Electrical and Computer Engineering) – focus on human-robot collaboration. Position number 38084,
https://www.higheredjobs.com/institution/details.cfm?JobCode=177093689 deadline: January 2020.
-Assistant Professor (tenure-track in Computer Engineering and Computer Science) – focus on IoT for robotics and Cyber Physical Systems. Position number 38087,
https://www.higheredjobs.com/institution/details.cfm?JobCode=177093688 deadline: January 2020.
- Research Assistant Professor (non- tenure track in Electrical and Computer Engineering) – focus on human-robot collaboration. Position number 37951,
https://www.higheredjobs.com/institution/details.cfm?JobCode=177075472 , deadline: September 30, 2019.
- Research Scientist (non-tenure track) – focus on human-robot collaboration (posting soon). Postdoctoral Research Associate (non-tenure track, multiple positions available) - focus on robotics, mechatronics, con-

trol, and distributed sensing. Position number 38147,
https://www.higheredjobs.com/institution/details.cfm?JobCode=177099241, deadline: September 30, 2019.
- Funded Ph.D. Positions (5 available, ECE, ME, CECS) in multiple areas related to HRI, machine learning, control, sensors, and wearables, inquire about projects.

For all postgraduate positions, candidates are expected to have outstanding academic credentials, a demonstrated commitment to excellence in research in the field of robotics and automation, and excellent communication and team skills. An earned doctorate in electrical, mechanical or computer science and engineering or a closely related field is required.

Particular areas of expertise sought from a successful candidates include: Human-Robot Interaction, Micro and Nano Robotics, IoT, Intelligent Robotic Manufacturing, Human in the loop Control, Learning Control, and Distributed Robotic Sensors.

The University of Louisville is a state-supported metropolitan research university located in Kentucky's largest urban area. Candidates will be expected to work closely with Speed School's robotics researchers, in particular the Next Generation Systems group, and participate in two new initiatives: the Louisville Automation and Robotics Research Institute (LARRI), and the KY NSF EPSCOR program on augmented robots and structures.

All application material should be collected into one document for upload. Include a curriculum vitae, an application letter outlining your qualifications for the position, a statement of your research philosophy and experience, and the names of at least three references with full contact information. Inquiries are welcome!

6.39. Faculty: University of Waterloo, Canada
Contributed by: Maureen Fraser, mcfraser@uwaterloo.ca

Tenture Track Position/Applied Mathematics/University of Waterloo

The Department of Applied Mathematics in the Faculty of Mathematics at the University of Waterloo invites applications for a tenure-track position at the rank of Assistant Professor, and in special cases Associate or Full Professor. The primary area of interest is control theory. However, exceptional candidates with broad interests in all areas of modern applied mathematics that enhance the research and teaching needs of the Department, are invited to apply.

The successful candidate will have the ability to establish an outstanding research program. Experience with interdisciplinary or industrial applications is of particular interest. We are looking for applicants with an enthusiasm for teaching at both the undergraduate and graduate level, and for the supervision of graduate and undergraduate research.

The Department of Applied Mathematics is one of four departments, together with a School of Computer Science, that comprise the Faculty of Mathematics at the University of Waterloo. The Faculty was ranked 20th in the world for mathematics in the 2015 QS World University Rankings. The department has 28 regular faculty whose research interests include control theory, differential equations and dynamical sys-

tems, fluid dynamics, mathematical biology & medicine, mathematical physics, and scientific computing. Research in the department is enhanced by interdisciplinary and industrial collaborations and links to interdisciplinary institutes including the Centre for Computational Mathematics in Industry and Commerce and the Water Institute. The department has a substantial graduate program with over 135 graduate students pursuing Masters or PhD degrees, and strong undergraduate programs in applied mathematics and mathematical physics. More information about the department can be found at http://math.uwaterloo.ca/applied-mathematics/.

Candidates interested in this position should have a PhD or equivalent in Applied Mathematics, or related field. The salary range for this position is $100,000-$160,000. Salary will be commensurate with qualifications, experience and research record. Negotiations beyond this salary range will be considered for exceptionally qualified candidates. The effective date of appointment is July 1, 2020.

If you have any questions regarding the position, the application process, assessment process, eligibility, or a request for accommodation during the hiring process, please contact:

Dr. Siv Sivaloganathan, Chair, Department of Applied Mathematics, University of Waterloo, Waterloo, Ontario, Canada N2L 3G1 (am-chair@uwaterloo.ca).

Interested individuals should apply using the MathJobs site (https://www.mathjobs.org/jobs/jobs/14597). Applications should include a cover letter, a curriculum vitae, research and teaching statements, teaching evaluation summaries (if available) and up to three reprints/preprints. In addition, applicants should arrange to have at least three reference letters submitted on their behalf. Completed applications will be reviewed on an ongoing basis. The application deadline is December 1, 2019.
Three reasons to apply: https://uwaterloo.ca/fauw/why.

6.40. Faculty: Lehigh University, USA
Contributed by: Ted Ralphs, ted@lehigh.edu

Tenure-track position at Lehigh Industrial and System Engineering

The Department of Industrial and Systems Engineering (ISE) at Lehigh University invites applications for a tenure-track Assistant Professor position. Candidates must possess a Ph.D. and a strong methodological background in any ISE-relevant discipline, including but not limited to data analysis and learning, optimization, and stochastic methods. The Rossin College of Engineering and Applied Science is pursuing an exciting research agenda guided by strategic research directions (https://engineering.lehigh.edu/research), so applicants with a background in relevant application areas, such as health, energy, service, or manufacturing systems are especially encouraged to apply. Lehigh University is committed to increasing the diversity and inclusion in the university community and curriculum. Candidates are expected to demonstrate a strong commitment to undergraduate and graduate education and pursue a vibrant research agenda.

Tracing its roots to the creation of the Industrial Engineering program in 1924, the ISE Department currently has 20 full-time faculty members, 185 undergraduate and 180 graduate students, 35 of whom are Ph.D. students. The department offers comprehensive research and educational programs at the B.S., M.S.,

and Ph.D. levels. The ISE faculty maintains an outstanding international reputation in a variety of research areas. ISE is undergoing significant growth in various areas of operations research, data analytics, and computing. Current research thrusts include (1) Data Science and Machine Learning; (2) Energy and Service Systems; (3) High Performance Computing; (4) Mathematical Optimization; and (5) Stochastic Methods, but the department is always looking to expand our research footprint.

The Department maintains excellent computational and laboratory facilities, including high-performance computing and other associated infrastructure housed in a state-of-the-art facility maintained as part of the Laboratory for Computational Optimization Research. Department faculty also have access to centralized facilities dedicated to high-performance computing. Annual research expenditures exceed $2.5 million. The Department has extensive interdisciplinary ties with other departments at Lehigh through interdisciplinary master's programs in healthcare and financial engineering, as well as participation in the college's flagship research institutes: the Institute for Data, Intelligent Systems, and Computation and the Institute for Cyber Physical Infrastructure and Energy.

All applications must be submitted at https://academicjobsonline.org/ajo/jobs/14754. Review of applications will begin October 15, 2019 and will continue until the position is filled. The application should include a cover letter, a statement of research and teaching interests, a statement on diversity, a curriculum vitae, names and addresses of at least three references, and representative research paper(s). Inquiries may be addressed to Professor Ted Ralphs, Search Committee Chair, ted@lehigh.edu.

6.41. Faculty: Delft University of Technology, The Netherlands
Contributed by: Tamas Keviczky, t.keviczky@tudelft.nl

The Delft Center for Systems and Control (www.dcsc.tudelft.nl) at the Delft University of Technology, The Netherlands seeks to hire two outstanding Assistant or Associate Professors in the following areas:

1. Optimal Control of Thermofluids Networks
2. Networked Cyber-Physical Systems

More information on these positions and on how to apply can be found at
https://www.tudelft.nl/en/3me/departments/delft-center-for-systems-and-control/about-dcsc/vacancies/
or by contacting Dr.ir. Tamas Keviczky (t.keviczky@tudelft.nl).