E-Letter on Systems, Control, & Signal Processing
Issue 376, December 2019

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Welcome to Issue 376 of the CSS E-letter available here.
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The next E-Letter will be mailed out at the beginning of January 2020.

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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.

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

Follow us on Twitter https://twitter.com/CSSIEEE
Like us on Facebook https://facebook.com/CSSIEEE

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:

- 28th Mediterranean Conference on Control and Automation (MED 2020). St Raphaël, France. June 16-19, 2020. http://med2020.cran.univ-lorraine.fr/

- 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/

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

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 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.

2 Miscellaneous

2.1. Graduate School on Control: Modeling and Control of Nonlinear Systems
Contributed by: Yann Le Gorrec, legorrec@femto-st.fr

EECI Graduate School on Control (EECI-IGSC 2020) - "Modeling and Control of Nonlinear and Distributed Parameter Systems: the Port Hamiltonian Approach

It is our pleasure to inform you that the course "Modeling and Control of Nonlinear and Distributed Parameter Systems: the Port Hamiltonian Approach" which will be held from Monday 24 February 2020 to Friday 28 February 2020 at Centrale Supelec, Paris Saclay, France in the context of the 2020 International Graduate School on Control (EECI-IGSC-2020). The course is intended for PhD students and young researchers.

More information can be found on the website
http://events.femto-st.fr/MCDPS-PHS/en/course-description

If you are interested in following this course please register through the website
http://www.eeci-igsc.eu/igsc-program/

Yann Le Gorrec (FEMTO-ST, France)
Arjan van der Schaft (University of Groningen, The Netherlands)
Hans Zwart (University of Twente, The Netherlands)

2.2. Graduate School on Control: Networked Control of Multi-Agent Systems
Contributed by: Jan Lunze, lunze@atp.rub.de

Networked Control of Multi-Agent Systems
Module M03 of the International Graduate School on Control 2020 organised by the European Embedded Control Institute (EECI)
Date: February 10 - 14, 2020
Venue: Eindhoven University of Technology, The Netherlands
Lecturer: Prof. Dr. Jan Lunze, Ruhr-University Bochum, Germany
Registration: www.eeci-igsc.eu

Course description: Networked control uses the flexibility of digital communication systems to connect arbitrary components on demand, which makes novel control structures possible and poses fundamental research questions: Under what conditions should information be transferred from one control loop to another one? What is the minimum requirement on the communication structure to solve a control problem at hand? Why are certain information structures more favourable than others?

Starting with fundamental notions of algebraic graph theory, the course shows how graph theory and systems theory have to be combined to find networked controllers that make linear agents to synchronise or to follow set-point commands collectively. It presents a novel methodology for the selection of an appropriate communication structure for which all agents react on leader commands as quickly as possible. Further-

more, it shows how the agents can generate an overall system with a reasonable structure based only on their local information, such that the communication structure adapts to disturbances in a self-organised way.

The introduction of the main ideas is illustrated by numerous examples from diverse fields like vehicle platooning, networks of coupled oscillators or electrical power systems. The course participants should solve exercises, partly by using MATLAB, to learn more about the interesting dynamical phenomena that occur in networked systems.

Topics:
- Introduction to networked systems
- Algebraic graph theory
- Consensus in continuous-time and discrete-time systems
- Synchronisation of multi-agent systems with identical and individual dynamics
- Design of the communication structure of networked controllers
- Self-organisation in networked systems

The course uses the new textbook
Jan Lunze:
Networked Control of Multi-Agent Systems
BookmundoDirect 2019,
ISBN 9789463867139,
publish.bookmundo.de/books/176262.

The book provides more than 100 exercises, some of which will be used in the course. Furthermore, the book gives supplementary material on matrix theory, probability theory and MATLAB functions for graphs.

2.3. Graduate School on Control: 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/.

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2.4. Course on Modeling and Simulation of Cyber-Physical Systems
Contributed by: Ricardo Sanfelice, ricardo@ucsc.edu

Online Course on Modeling and Simulation of Cyber-Physical Systems

Cyber-physical systems (CPS for short) combine digital and analog devices, interfaces, networks, computer systems, and the like, with the natural and man-made physical world. The inherent interconnected and heterogeneous combination of behaviors in these systems makes their analysis and design an exciting and challenging task.

This course provides you with an introduction to modeling and simulation of cyber-physical systems. The main focus is on models of physical process, finite state machines, computation, converters between physical and cyber variables, and digital networks. The instructor of this course is Ricardo Sanfelice (https://hybrid.soe.ucsc.edu), Professor in the Department of Electrical and Computer Engineering at the University of California Santa Cruz.

Course site: https://www.coursera.org/learn/cyber-physical-systems-1

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3 Books

3.1. Towards Integrating Control and Information Theories
   Contributed by: Song Fang, song.fang@nyu.edu

Towards Integrating Control and Information Theories: From Information-Theoretic Measures to Control Performance Limitations by Song Fang, Jie Chen, and Hideaki Ishii
2017, Springer
ISBN: 978-3-319-49288-9
Hardcover, 190 pages, $149.99/€124,79
https://www.springer.com/gb/book/9783319492889

This book is an attempt towards bridging control theory and information theory to characterize the fundamental limitations of generic feedback systems; in particular, we aim to develop an information-theoretic framework to analyze the performance bounds and design trade-offs that are prevalent in all possible feedback systems.

Towards this end, the book introduces new entropic measures compatible with the analysis of feedback control systems and studies various classes of performance limitation relations. In addition, we examine the implications of the results in the context of state estimation and correspondingly obtain generic bounds on estimation errors.

It is also worth mentioning that, thanks to the information-theoretic analysis, the aforementioned performance limits are valid for arbitrary causal controllers or estimators, whether they be designed using conventional approaches or, say, machine learning methods (learning in the loop).

Contents

1. Introduction
2. Information Measures and Spectral Analysis
3. Control Performance Measures
4. Channel Blurredness
5. Bode-Type Integrals
6. Bounds on Power Gain
7. MIMO Systems
8. Bounds on Estimation Error
9. Continuous-Time Systems

3.2. Discrete-Time Stochastic Sliding Mode Control Using Functional Observation
   Contributed by: Laura Burgess, laura.burgess@springer.com

Discrete-Time Stochastic Sliding Mode Control Using Functional Observation by Satnesh Singh and Janardhanan Sivaramakrishnan
ISBN: 978-3-030-32799-6

This book extrapolates many of the concepts that are well defined for discrete-time deterministic sliding-mode control for use with discrete-time stochastic systems. It details sliding-function designs for various categories of linear time-invariant systems and its application for control. The resulting sliding-mode control addresses robustness issues and the functional-observer approach reduces the observer order substantially.

Sliding-mode control (SMC) is designed for discrete-time stochastic systems, extended so that states lie within a specified band, and able to deal with incomplete information. Functional-observer-based SMC is designed for various clauses of stochastic systems: discrete-time; discrete-time with delay; state time-delayed; and those with parametric uncertainty. Stability considerations arising because of parametric uncertainty are taken into account and, where necessary, the effects of unmatched uncertainties mitigated. A simulation example is used to explain the use of the functional-observer approach to SMC design.

Discrete-Time Stochastic Sliding-Mode Control Using Functional Observation will interest all researchers working in sliding-mode control and will be of particular assistance to graduate students in understanding the changes in design philosophy that arise when changing from continuous- to discrete-time systems. It helps to pave the way for further progress in applications of discrete-time SMC.

Content

1. Preliminary Concepts
2. Design of Sliding Mode Control for Discrete-Time Stochastic Systems with Bounded Disturbances
3. Functional Observer-Based Sliding Mode Control for Discrete-Time Stochastic Systems
4. Functional Observer-Based Sliding Mode Control for Discrete-Time Stochastic Systems with Unmatched Uncertainty
5. Stochastic Sliding Mode Control for Parametric Uncertain Systems Using a Functional Observer
6. Functional Observer-Based Sliding Mode Control for Discrete-Time Delayed Stochastic Systems
7. Functional Observer-Based Sliding Mode Control for Parametric Uncertain Discrete-Time Delayed Stochastic Systems

4 Journals

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

Evolution Equations and Control Theory
Volume 9, Issue Number 1, March 2020
https://www.aimsciences.org/journal/A0000-0000/2020/9/1

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- Abdelmouhcene Sengouga, Exact boundary observability and controllability of the wave equation in an interval with two moving endpoints, p. 1
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4.2. Mathematics of Control, Signals and Systems
Contributed by: Lars Gruene, lars.gruene@uni-bayreuth.de

Mathematics of Control, Signals and Systems (MCSS)
Issue 31(4), 2019

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4.3. Systems & Control Letters
Contributed by: Lusia Veksler, lveksler@ucsd.edu

Systems & Control Letters
Volume 133, November 2019

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- Asynchronous control for switched systems by using persistent dwell time modeling, Shuang Shi, Zhenpeng Shi, Zhongyang Fei, Article 104523
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Contributed by: Keum-Shik Hong, journal@ijcas.com

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4.5. Journal of Dynamical and Control Systems
Contributed by: Yury Sachkov, yusachkov@gmail.com

Journal of Dynamical and Control Systems
Volume 26 · Number 1 · January 2020

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- Approximate Controllability of Non-autonomous Evolution System with Nonlocal Conditions, P. Chen · X. Zhang · Y. Li 1
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Contributed by: Zou Tiefeng, tfzou@scut.edu.cn

Special issue on networked system control and connected vehicles: opportunities and challenges

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

IET Control Theory & Applications

Volume 13, December 2019

http://digital-library.theiet.org/content/journals/iet-cta/13/18

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

Volume 92, Issue 12, 2019
http://www.tandfonline.com/toc/tcon20/current

Papers:

- Reduced-order filtering for networks with Markovian jumping parameters and missing measurements, H. Peng, R. Q. Lu, P. Shi & Y. Xu, pages: 2737-2749
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- Learning effective state-feedback controllers through efficient multilevel importance samplers, S. A. Menchón & H. J. Kappen, pages: 2776-2783
- Weak and strong stabilisation of bilinear systems in a Banach space, A. Benzaza & M. Ouzahra, pages: 2784-2790
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- Event-triggered zero-gradient-sum distributed convex optimisation over networks with time-varying topologies
Jiayun Liu, Weisheng Chen & Hao Dai, pages: 2829-2841
- Robust design of a linear quadratic power control algorithm in multiple-access networks, A. J. Rojas, D. U. Campos-Delgado, J. M. Luna-Rivera & C. A. Gutierrez, pages: 2842-2853
- Quadrotor trajectory tracking by using fixed-time differentiator, Bai-Hui Du, Andrey Polyakov, Gang Zheng & Quan Quan, pages: 2854-2868
- An iterative method for suboptimal control of a class of nonlinear time-delayed systems, Seyed Mehdi Mirhosseini-Alizamini & Sohrab Effati, pages: 2869-2885
- Distributed adaptive leader-following tracking control of networked Lagrangian systems with unknown control directions under undirected/directed graphs, Gang Wang, Chaoli Wang & Yantao Shen, pages: 2886-2898
- Conditions for the equivalence between IQC and graph separation stability results, Joaquin Carrasco & Peter Seiler, pages: 2899-2906
- Designing parametric linear quadratic regulators for parametric LTI systems via LMIs, Graziano Chesi & Tiantian Shen, pages: 2907-2916
- Decentralised zero-sum differential game for a class of large-scale interconnected systems via adaptive dynamic programming, Jingliang Sun & Chunsheng Liu, pages: 2917-2927
- Design of finite-time H-Infinity controller for uncertain nonlinear systems and its application, Yang Liu, Xiaoping Liu, Yuanwei Jing & Ziye Zhang, pages: 2928-2938
- Robustness evaluation and robust design for proportional-integral-plus control, Emma D. Wilson, Quentin Clairon, Robin Henderson & C. James Taylor, pages: 2939-2951
- Guaranteed performance consensus problems for nonlinear multi-agent systems with directed topologies, Zhong Wang, Zhiliang Fan & Guangbin Liu, pages: 2952-2962
- Bipartite tracking of homogeneous and heterogeneous linear multi-agent systems, Qiang Jiao, Hongwei Zhang, Shengyuan Xu, Frank L. Lewis & Lihua Xie, pages: 2963-2972
- Stability criteria of matrix polynomials, Guang-Da Hu & Xiulin Hu, pages: 2973-2978
- Output feedback preview tracking control for discrete-time polytopic time-varying systems, Li Li & Fucheng Liao, pages: 2979-2989

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

Asian Journal of Control

Two Special Issues on *TP Model Transformation based Control Design Theories and Applications* and *Emerging Control Techniques for Mechatronic and Transportation Systems*

1. 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 pro-

ceed 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
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Prof. Yeung Yam
Chinese University of Hong Kong, Hong Kong SAR, China
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United Technologies Research Center, USA
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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

2. Emerging Control Techniques for Mechatronic and Transportation Systems

It is extremely important in the contemporary global society to develop reliable control techniques for mechatronic and transportation systems that can be easily implemented using modern digital and wireless technologies to force engineering systems to behave like skilled workers who work quickly, accurately, and cheaply, despite parametric variations, nonlinearities, and persistent disturbances. Many engineering control problems still remain unsolved, especially for mechatronic and transportation systems, under the following realistic hypotheses: parametric and/or structural uncertainties, fast-varying references, measurement noises, real amplifiers and actuators, and/or finite online computation time of the control signal. Furthermore, to reduce the gap between theory and practical feasibility, the designed control laws should be easy to design and implement with smart sensors, power supplies, and intelligent actuators.

The objective of this Special Issue is to present emerging control techniques for mechatronic and transportation systems that can be successfully applied to numerous engineering applications (e.g., control of rolling mills, conveyor belts, unicycles, bicycles, cars, trains, ships, airplanes, drones, missiles, satellites, platoons, manufacturing robots, such as welding, painting, assembly, pick and place for printed circuit boards, packaging and labeling, palletizing, product inspection, and testing ones, and surgical robots). The topics include but are not limited to:

- Unmanned systems
- Industrial robots
- Remote servomechanisms
- Transportation systems
- Vehicle platoons
- Networked autonomous agents
- Smart sensors and actuators
- Human-machine interaction and human-machine cooperation
- IoT control design
- From research to industry

Guest Editors:

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Important Dates:
March 15, 2020 Deadline for Submissions
June 15, 2020 Completion of First Review
August 15, 2020 Completion of Final Review
November 15, 2020 Receipt of Final Manuscript
March, 2021 (Tentatively Vol. 23, No. 2) Publication

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. International Conference on Methods in Automation and Robotics, Poland
Contributed by: Pawel Dworak, pawel.dworak@zut.edu.pl

25th International Conference on Methods and Models in Automation and Robotics
24-27 August 2020
Amber Baltic Hotel, Miedzyzdroje, Poland

It is our great pleasure to invite You to participate in the 25th International Conference on Methods and Models in Automation and Robotics, MMAR 2020 to be held in Miedzyzdroje, Poland, from August 24th to August 27th, 2020.

The Conference will be a good opportunity for highlighting the new results and directions of Automatic Control theory, technology and applications. As such, it mainly will concentrate on the following key points:
– emphasis on invited lectures including plenaries,
– industry participation promotion,
– attract young people to study and work in the field.

The participants of the 25th International MMAR Conference will have the opportunity to take part in the wide spectrum of categories for technical presentations, including plenary lectures, regular papers of both lecture and poster session types, and panel discussion. We look forward to seeing our old and new friends in Poland. You are kindly invited to participate in the 25th International MMAR Conference in Miedzyzdroje, Poland.

Topics of interest include, but are not limited to:
– Identification, modelling and simulation

– Signal processing
– Control and systems theory
– Robotics
– Intelligent systems and methods
– Control systems

The proceedings of the conference will be submitted for review and approval for inclusion in the IEEE Xplore® Digital Library and will be submitted for inclusion in the Conference Proceedings Citation Index - Science (ISI Web of Science).
Key Dates
March 2, 2020 - Paper submission
May 18, 2020 - Notification of acceptance
June 22, 2020 - Registration
June 22, 2020 - Camera-ready paper submission

For more information see http://www.mmar.edu.pl

5.3. Conference on Learning for Dynamics and Control, USA
Contributed by: Melanie Zeilinger, mzeilinger@ethz.ch

Conference on Learning for Dynamics and Control, L4DC 2020, Berkeley

Call for Papers: 2nd Annual Conference on Learning for Dynamics and Control, L4DC 2020
University of California, Berkeley, **June 10-11, 2020**
Paper submission deadline: **December 6, 20219**
http://l4dc.org

It is our pleasure to invite you to contribute your papers to and participate in the 2020 Conference on Learning for Dynamics and Control, which will take place in Berkeley, California, June 10-11, 2020. L4DC is an interdisciplinary venue for researchers at the intersection of machine learning, control, system theory, optimization and related areas. It has been launched last year to create a new community of people that thinks rigorously across the disciplines, asks new questions, and develops the foundations of this new scientific area.

This year, in addition to a series of invited talks, we invite submissions of short papers. The deadline for paper submission is December 6, 2019 with final decisions made on March 2, 2020.
Please find more information below or on the website: l4dc.org.
We look forward to meeting you at L4DC 2020 in Berkeley.

Ben Recht, Claire Tomlin, Alex Bayen, Ali Jadbabaie, George Pappas, Pablo Parrilo, Melanie Zeilinger (Organizers L4DC 2020)

Paper Submission:
• Submissions are limited to 8 pages in PMLR format (template available on website).

• The deadline for submissions is 5:00 PM EST on December 6, 2019.
• Please contact the program chairs at L4DC2020@gmail.com if you have any questions about the policy or technical issues with the submission process.

Publication and presentation: All accepted papers will be presented as posters at this conference. A selected set of papers deemed particularly exceptional by the program committee will be presented as 15 minute oral talks. At least one of each paper's authors should be present at the conference to present the work. Accepted papers will be published electronically in the Proceedings of Machine Learning Research (PMLR).

Dual Submission Policy: Submissions that are substantially similar to papers that have been previously published, accepted for publication, or submitted in parallel to other peer-reviewed conferences with proceedings or journals may not be submitted to L4DC.

Topics: We invite submissions of short papers addressing topics including:
• Foundations of learning of dynamics models
• System identification
• Optimization for machine learning
• Data-driven optimization for dynamical systems
• Distributed learning over distributed systems
• Reinforcement learning for physical systems
• Safe reinforcement learning and safe adaptive control
• Statistical learning for dynamical and control systems
• Bridging model-based and learning-based dynamical and control systems
• Physics-constrained learning
• Physical learning in dynamical and control systems applications in robotics, autonomy, transportation systems, cognitive systems, cognitive systems, neuroscience, etc.

While the conference is open to any topic on the interface between machine learning, control, optimization and related areas, its primary goal is to address scientific and application challenges in real-time physical processes modeled by dynamical or control systems.

5.4. Symposium on Mathematical Theory of Networks and Systems, UK
Contributed by: Malcolm Smith, mcs@eng.cam.ac.uk

24th International Symposium on Mathematical Theory of Networks and Systems (MTNS 2020)
24-28 August 2020, Cambridge, UK
MTNS 2020, UK
mtns2020.eng.cam.ac.uk

Key Dates:
- 12 January 2020: Proposals for mini-courses and invited sessions
- 26 January 2020: Invited session full papers and extended abstracts

- 26 January 2020: Contributed session full papers and extended abstracts

It is a pleasure to invite you to attend the 24th MTNS conference in Cambridge in August 2020 - the first time that MTNS has been hosted in the UK. We look forward to an exciting symposium in the best traditions of MTNS in the historic city and university of Cambridge.

Papers, invited sessions and mini-courses are solicited in all areas of mathematical systems theory, networks and control. Mathematical methods may come from a broad range of fields of pure and applied mathematics, such as ordinary and partial differential equations, real and complex analysis, numerical analysis, probability theory and stochastic analysis, operator theory, linear and commutative algebra as well as algebraic and differential geometry. All application areas are encouraged and typically range from biology, communications and mathematical finance to problems in electrical, mechanical, aerospace and chemical engineering, and robotics.

MTNS 2020 is co-sponsored by IFAC for the first time. Authors have the option of submission of full papers to be published in the open-access IFAC-PapersOnLine. Authors also have the traditional option of submitting extended abstracts which will be available to conference participants and on the conference website but will not be published.

6 Positions

6.1. PhD: University of Georgia, USA
Contributed by: Javad Mohammadpour, javadm@uga.edu

Several open positions are available for PhD students at Velni's Lab in the School of ECE at Univ. of Georgia. The positions are available as early as January 2020. The topics and the desired background are as follows:

1. Learning-based and Uncertainty-aware Control for Complex Systems
The objective of this project is to develop fundamental tools for real-time (and data-driven) model learning and predictive control of nonlinear and stochastic systems, where uncertainties are also learned, and apply them to several practical applications. The modeling and control design would be done in the linear parameter-varying (LPV) framework. Strong background in machine learning and model predictive control (MPC) is required. Prior knowledge of LPV systems modeling and/or control is desired.

2. Development of a Big Data Analytics Pipeline for Precision Agriculture
The general goal of this project is to utilize and implement real-time learning tools (like Faster RCNN and YOLO) for a variety of applications in smart farming, and in particular in high-throughput phenotyping. Strong background in machine/deep learning theory and application and big data analytics is required.

3. Stochastic Hybrid Control Design for Mass Deployment of Autonomous Vehicles
The general goal of the project is to develop a model-based stochastic hybrid systems theoretic approach to coordinate a large group of connected and automated vehicles. In particular, the project will develop a stochastic MPC framework accounting for probabilistic uncertainties in disturbances (e.g., human actions) and vehicles' operating mode transitions. Strong background in hybrid control systems is required. Prior knowledge of statistical machine learning is desired.

4. Anomaly Detection in Cyber-human-physical Systems using Statistical Learning
The general goal of the project is to develop distributed approaches for detecting anomalies (faults or attacks) in cyber-physical systems, and in particular in smart energy systems. The development of theory and implementation of distributed real-time learning approaches is the goal, where the prior knowledge of the underlying physics-based models will be embedded in the appropriate data-driven method and used for detecting anomalies. Strong background in graph theory and machine learning is required. Prior knowledge of domain (e.g., power systems) is desired.

A competitive research assistantship and full tuition waiver will be offered. Outstanding candidates will also be considered for other fellowships provided by the UGA College of Engineering and Graduate School.

To apply, please send an application package to javadm@uga.edu. The application should be submitted as a single PDF and include a cover letter (explicitly describing the candidate background and how they fit the open positions), a detailed CV (including the list of publications), and unofficial copies of their BS (and, if applicable, MS) transcripts.

University of Georgia (UGA), a top tier one research institution, is ranked 16th overall among all public

national universities in the 2018 U.S. News & World Report rankings, and a Princeton Review top ten in value. UGA is recognized as a Public Ivy, a publicly-funded university considered to provide a quality of education comparable to that of an Ivy League university. Athens, GA is located approximately 70 miles northeast of Atlanta, GA. Consistently voted one of the best college towns in the United States, Athens has a thriving business, restaurant and music scene and is the gateway to numerous leisure activities in northern Georgia.

6.2. PhD: Tampere University, Finland
Contributed by: Reza Ghabcheloo, reza.ghabcheloo@tuni.fi

Fully funded PhD position in Safety for Autonomous Mobile Machines.

Possible background: Computer Engineering, Automation, Robotics, Embedded Systems or a related discipline in science or engineering. You will be working within a large research group including post-docs, PhD and MSc students.

Safety is possibly the biggest concern at the moment in this field. Let's change the way things are done. Apply now:

https://bit.ly/2XmHoha

6.3. PhD: Erasmus Mundus Program, France
Contributed by: Antonio M Pascoal, antonio@isr.tecnico.ulisboa.pt

Erasmus Mundus masters programme in Marine and Maritime Intelligent Robotics (MIR) The application procedure for the EU-funded Erasmus Mundus masters programme in Marine and Maritime Intelligent Robotics (MIR) is now open. 22 prestigious Erasmus Mundus Scholarships will be granted this year and we would like to encourage students from all over the world with a strong background in Mathematics and B2 level of English to visit the MIR website www.master-mir.eu and apply directly.

Successful candidates will study one year in France at UTLN (Univ. Toulon), after which they will choose between NTNU (Norwegian University of Science and Technology) in Norway, IST-University of Lisboa in Portugal, or UJI (Univ. Jaume I) in Spain for their 2nd year specialisation. Master thesis can be conducted in any of the 50 associate partner industry or research institutions.

The Erasmus Mundus scholarship covers the participation costs, tuition fees, a monthly allowance for living costs and a contribution to travel and installation costs. Each successful candidate granted an Erasmus Mundus scholarship, will receive 1000EUR each month for living costs during the 24 months duration of the program.

The scholarship also includes a contribution to travel and installation costs of up to 7000 EUR, including the participation costs of 9000 EUR (EU students) and 18000 (Non- EU students).

The online Candidature closes on the 9th of January. For more information, please visit www.master-mir.eu
Should you have further questions, please feel free to contact

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6.4. PhD: Lorraine University, France
Contributed by: Jean-Christophe Ponsart, Jean-Christophe.Ponsart@univ-lorraine.fr

A PhD position in Fault diagnosis and fault-tolerant control of LPV systems in Research Center for Automatic Control of Nancy (CRAN - www.cran.univ-lorraine.fr/anglais/) is opened from October 2020
Link: https://bit.ly/34bpuk2.

Applicants shall have a Master's degree in systems and controls, applied Math or a related discipline.

Please email your application to Pr JC Ponsart (jean-christophe.ponsart@univ-lorraine.fr) and Dr B. Marx (benoit.marx@univ-lorraine.fr) The application should include your detailed CV, a brief statement of research experience and interests, a list of publications, copies of testamurs and diploma supplements, as well as grades and rankings from the candidate, dissertations and/or internship reports and/or publications from the candidate, the names of one to three references with eventuelly a recommendation letter, and a scan of your passport.

Details of the work: Fault diagnosis and fault tolerant control (FTC) are key issues. Indeed, fault diagnosis allows to detect, locate and possibly quantify one or more malfunctions in a process. The fault tolerant control relies on the results provided by the diagnosis to ensure a certain level of performance despite the occurrence of fault(s) [Blanke, 2006]. While these tools have been developed in the linear framework for several decades, the current challenge remains their extension to the nonlinear framework, which is necessary for an accurate description of complex processes. In this perspective, the use of linear parameter varying systems (LPV) [Briat, 2015, Marx, 2015], or polytopic or TS systems [Takagi, 1985] is an interesting and generic tool for representing a large class of nonlinear systems by a structure close to the linear case or defined by a set of linear submodels [Lendek, 2010, Tanaka, 2001]. This representation facilitates the performance analysis and the synthesis of control, observation and diagnostic modules using, for example, optimization under linear matrix inequality constraints (LMI).

Expected researches: The cause and nature of the faults affecting the process to be diagnosed and/or controlled have a significant influence on the diagnosis or FTC techniques to be used. According to [Pasqualetti, 2013], faults can be caused - among other things - by accidental or malicious corruptions of measures taking

the form of unknown entries replacing the transmitted data or by transmission defects (missing data, saturations [Bezzaoucha, 2016], dead zones, etc). From the modeling point of view, two main classes of faults can be distinguished : additive and parametric. Among the latter, a particular care should be taken with input saturations that prevent the calculated control input from being applied to the system [Tarbouriech, 2011]. Several works have already been done in this direction [Bezzaoucha, 2016], but some obstacles still remain (restrictive assumptions, pessimism of the results, etc.) and limit their applications. A more accurate description of the saturation phenomena in a polytopic form should make it possible to remove some of these locks. Constraints on state variables should also be included to take into account the validity domain of the polytopic rewriting of the original nonlinear model [Nguyen, 2015]. In the context of diagnosis and tolerance to additive faults, an interesting research direction would be to avoid the exclusive use of observer-based structures. Indeed, the observer is synthesized by minimizing the fault influence on the estimation error, and then the residue generator is constructed to be as sensitive as possible to faults, precisely from this estimation error. It would therefore be interesting to consider alternative structures for the diagnostic modules based on the available input and output signals of the system. Among the possible structures, the use of coprime factorization should be considered for the diagnosis and FTC of nonlinear systems. This technique was used in the linear framework for diagnosis [Frank, 1994] and for FTC [Zhou, 2001], but its extension to the non-linear framework remains open.

To summarize, after a preliminary bibliographical work, the following pathes could be explored by the PhD student :
- polytopic modelling of transmission faults phenomena, such as saturation and/or dead zones, allowing them to be taken into account in the system model, and may be allowing the estimation of their parameters [Bezzaoucha, 2016] ;
- Observer-based diagnosis for nonlinear systems based on polytopic / LPV models [Lopez Estrada, 2014, Lopez Estrada, 2019] ;
- the extension of the coprime factorization-based diagnosis to nonlinear systems represented by polytopic models / LPV
- the extension of the obtained results to descritor polytopic LPV models [Estrada Manzo, 2015, Lopez Estrada, 2014].

6.5. PhD: KU Leuven, Belgium
Contributed by: Jan Swevers, jan.swevers@kuleuven.be

Funded Ph.D. Position at the KULeuven Department Mechanical Engineering (Belgium) in Multi-Agent Learning and Control for Mechatronic Systems In the realm of Industry 4.0, mechatronic systems such as autonomous guided vehicles (AGVs), drones, robots, and machine tools are getting more modular and collaborative. This transition drives a paradigm shift in the corresponding learning and control algorithms as well, where centralized single-agent approaches are making way for collaborative, multi-agent counterparts. In addition, optimization-based learning and control (MPC) approaches are steadily gaining ground on classical PID type approaches. Under the hood, modern multi-agent learning and control approaches rely on distributed optimization algorithms to decompose the overall problem in single-agent sub-problems, which are gradually adjusted to yield the overall solution through inter-agent communication.

In this research you will tailor distributed optimization algorithms to multi-agent learning and model predictive control (MPC) approaches. The aim of multi-agent learning is to collaboratively learn optimal control actions (feedforward) from past experience of all agents / subsystems, whereas multi-agent model predictive control aims at collaboratively and optimally adjusting the controls based on real-time sensory information (feedback). The primary application domain of your methods will be motion planning and control for mechatronic systems, particularly AGV's and mobile robotic manipulators. Your research will mainly focus on software developments, simulation based evaluation and experimental validation on lab-scale setups. For the software developments, you will extend recent developments within the MECO research team on optimal control (check out https://gitlab.mech.kuleuven.be/meco-software/rockit) and learning control (check out https://gitlab.mech.kuleuven.be/meco-software/rofalt). Under the hood, CasADi (www.casadi.org) is used as symbolic optimization framework and algorithmic differentiation tool.

You will be embedded in the MECO (Motion Estimation Control and Optimization) research team of the KU Leuven Department Mechanical Engineering. The MECO team focusses on the identification, analysis and control of mechatronic systems such as autonomous guided vehicles, robots, and machine tools. It combines theoretical innovations with experimental validations. The theoretical research benefits from the team's expertise on numerical optimization, while MECO's practical knowhow and industrial collaboration are supported by its participation in Flanders Make - a strategic research center for the manufacturing industry.

Ideal candidates hold a Master's degree in engineering, computer science, or applied mathematics. Successful candidates are typically ranked at or near the top of their classes, have a solid background in optimization, systems and control, relevant computer programming skills (Python or Matlab, C++), and enthusiasm for scientific research. Team player mentality, independence, and problem solving attitude are expected, and proficiency in English is a requirement.

Applicants whose mother tongue is neither Dutch nor English must present an official language test report. The acceptable tests are TOEFL, IELTS, and Cambridge Certificate in Advanced English (CAE) or Cambridge Certificate of Proficiency in English (CPE). Required minimum scores are:

- TOEFL: 600 (paper-based test), 100 (internet-based test);
- IELTS: 7 (only Academic IELTS test accepted);

A fully funded PhD position in an international context for four years at the KULeuven: a top European university and a hub for interdisciplinary research in the fields of systems, control and optimization. You will be embedded in the MECO research team of the Department of Mechanical Engineering. The doctoral candidate will work in world-class facilities with highly qualified experts, and will benefit from the training scheme developed based on the expertise of academic and industrial partners. A start date in the course of 2020 is to be agreed upon.

To apply, visit our website and follow this link:
https://www.mech.kuleuven.be/en/pma/research/meco/vacancies

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

I have two PhD positions for Fall 2020 in optimization and control of dynamic networks with applications to transportation systems, water distribution networks, and smart power grids at the ECE Department, University of Texas at San Antonio (UTSA). The ECE department at UTSA hosts the largest PhD program in terms of the number of PhD students, and the department has 30+ faculty in various engineering disciplines, with six faculty in systems and controls.

Interested applicants should have **all** of the following qualifications:
- a master's degree in engineering, applied mathematics, or related fields;
- strong background in optimization, linear systems theory, and machine learning (basic)
- a solid set of GPA, TOEFL, and GRE scores

Interested candidates can send me their transcripts and brief resume at ahmad.taha@utsa.edu, alongside any previously published papers, and copies of GRE/TOEFL scores. Emails should indicate that you have seen this ad in this E-Letter.

San Antonio is the seventh largest US city in terms of population, has moderate weather year round, and is very affordable for graduate students.

6.7. PhD: Tallinn University of Technology, Estonia
Contributed by: Arvo Kaldmäe, arvo@cc.ioc.ee

A PhD position is available at Tallinn University of Technology, Estonia on the topic of "Event-based control strategies based on differential flatness."
Short description: The PhD project is a part of a bigger project with the aim to develop a new modern method for controlling dynamical systems by combining the flatness-based feedforward control with the ideas of an event-based control. The property of differential flatness provides a very good control solution, but is sensitive to disturbances and model uncertainties. By combining it with an event-based control approach one can eliminate the negative aspects of the flatness-based control. Namely, the event generator reacts to model uncertainties and external disturbances and creates events, at which the flatness-based controller is updated with the data from the sensors. There are different theoretical and practical aspects that PhD candidate can study within the project.

About doctoral studies: PhD studies at Tallinn University of Technology are free and the university will employ the student as an early stage researcher. One can read more about PhD studies at Tallinn University of Technology from

https://www.ttu.ee/studying/phd-studies/admission-4/

About Estonia: Estonia is known for its innovative solutions in ICT field. E-voting, many successful start-up companies and wide use of digital signature are only some examples of this success. An innovative environment, combined with great value for money, has made Estonia a desirable destination for both

students and researchers in a knowledge-based society. Moreover, 89% of international students in Estonia are satisfied with their higher education. For more information about Estonia and studying in Estonia visit https://estonia.ee/ and http://www.studyinestonia.ee/en

Qualifications: master's degree in mathematical control theory, systems and control, applied mathematics or related fields. The applicants should have excellent English language skills. The project involves theoretical/mathematical research and the student should contribute to this work.

For more information, write to Arvo Kaldmäe (arvo@cc.ioc.ee), researcher at Department of Software Science, Tallinn University of Technology.

6.8. PhD: Delft University of Technology, The Netherlands
Contributed by: Bart De Schutter, b.deschutter@tudelft.nl

PhD position: "Machine-learning-based classification and control for cleaning coastal waters using autonomous vehicles" (Delft University of Technology)

The Delft Center for Systems and Control (https://www.dcsc.tudelft.nl) of Delft University of Technology, The Netherlands has a vacancy for a PhD position on "Machine-learning-based classification and control for cleaning coastal waters using autonomous vehicles." In this PhD project we will develop novel machine-learning-based approaches for control and classification in the context of autonomous unmanned underwater, surface, and aerial vehicles for locating, detecting, and collecting unwanted objects from coastal waters and seabeds. The PhD project is part of the European H2020 project SeaClear (SEarch, identificAtion and Collection of marine Litter with Autonomous Robots). The goal of SeaClear is to develop a collaborative, heterogeneous multi-robot solution engaged in collecting marine waste using autonomous underwater, surface, and aerial vehicles for cost-effective marine litter detection and collection.

This goal will be reached by bringing together state-of-the-art technologies from the fields of machine learning, sensing, manipulation, aerial and marine technologies and by building a stable and reliable system capable of tackling a highly relevant social, economic and environmental issue, namely ocean pollution. In the PhD project we will focus on two main topics: (1) the development of debris identification and classification methods using the various sensors on-board of the underwater, surface, and aerial vehicles, and (2) control design for higher-level activities such as cooperative control, task allocation, and planning. We will also put specific emphasis on mapping as an intertwined sensing and control problem. For topic (1) deep learning will be the primary solution direction, while for topic (2) we will use a combination of cooperative and distributed control, model-based control, and reinforcement learning. We are looking for a candidate with an MSc degree in systems and control, applied mathematics, computer science, electrical engineering, or a related field, and with a strong background or interest in control and/or machine learning.

The candidate is expected to work on the boundary of several research domains. A good command of the English language is required. We offer the opportunity to do scientifically challenging research in a multi-disciplinary research group. The appointment will be for up to 4 years. The PhD student will also be able to participate in the research school DISC (http://www.disc.tudelft.nl). As an employee of the university you will receive a competitive salary, as well as excellent secondary benefits. Assistance with accommodation can be arranged. More information on this position and on how to apply can be found at

https://bit.ly/2Dpa93k or by contacting Bart De Schutter (b.deschutter at tudelft.nl).

6.9. PhD: Delft University of Technology, The Netherlands
Contributed by: Bart De Schutter, b.deschutter@tudelft.nl

PhD position: Advanced control strategies for biological wastewater treatment in remote locations (Delft University of Technology)

The department of Water Management and the Delft Center for Systems and Control of Delft University of Technology have a vacancy for a PhD position on "Advanced control strategies for biological wastewater treatment in remote locations"

Globally, and particularly in India, there are hundreds of thousands not properly functioning anaerobic digesters. In India, the operational failure leads to wastewater being discharged directly in the Ganga, thereby polluting the main water resource for millions of their neighbours. As a result of poor maintenance often due to the lack of skilled labour, many digesters operate at a too short retention time, thereby inhibiting biogas production. With the lack of biogas production, the added value of operation reduces to a minimum, subsequently worsening operators' maintenance efforts and eventually leading to the complete abandonment of treatment plants. The SARASWATI 2.0 project (H2020 EU-India) aims to demonstrate new concepts that could mitigate water pollution in India. As one of the pilot projects within SARASWATI 2.0 program we have proposed a combination of a pressurized digester and a photoheterotrophic bioreactor as an alternative more robust treatment.

The aim of the PhD project is to develop a hybrid model predictive control strategy that ensures the performance of biological wastewater treatment in remote locations and offsets the limited availability of skilled labour and maximizes the production of value-added byproducts. The idea is to base the control system on for example the existing mechanistic ADMno1 model and complement it with cost-effective robust data collection by real-time and/or offline monitoring. The robustness of the entire treatment plant is essential and therefore the PhD student will have the ability to test the developed control strategy in the lab. This research is connected to other PhD students working on autogenerative pressure digesters and photoheterotrophic bioreactors.

Requirements: We are looking for highly talented and driven candidates, who have a relevant MSc degree in Systems & Control Engineering, Operations Research, or a related Applied Sciences field (such as chemical and/or environmental engineering, biotechnology), and who have a proven background and interest in mathematical modelling and data analytics skills or who are willing to invest in developing expertise in these research techniques. The candidate is also expected to have an analytical and quantitative approach toward problem solving and to be proficient in a programming language (e.g. Matlab, Python), to have affinity with or interested in biological wastewater treatment processes, and be willing to work in India and Delft within the EU-India H2020 project SARASWATI 2.0.

More information: For more information about this position and on how to apply, please contact dr. Ralph Lindeboom at r.e.f.lindeboom@tudelft.nl.

6.10. Postdoc: University of Delaware, USA
Contributed by: Andreas Malikopoulos, andreas@udel.edu

A position for a Postdoctoral Researcher is available in the department of Mechanical Engineering at the University of Delaware. The postdoctoral scholar will work with Professor Andreas Malikopoulos in the Information and Decision Science Laboratory (http://sites.udel.edu/ids-lab/) in a cutting edge project on sociotechnical systems. The ideal candidate should have a strong background in control theory with emphasis in analysis, optimization, and control of networked dynamical systems; distributed estimation, detection, and online learning; and applications of algebraic topology in network science. The appointment is for one year and may be renewed for a second year based on performance. The anticipated start date is January 1, 2020, but the position will remain open until filled.

We are seeking an exceptional individual who holds a Ph.D. in relevant disciplines and has demonstrated dedication to scholarship, creativity, and leadership. The application must include: (1) a cover letter, (2) a curriculum vitae; (3) the names and addresses of three or more references, (4) a two-page statement of research interests, and (5) electronic copies of no more than three representative publications.

To apply, please submit your application via
https://careers.udel.edu/cw/en-us/job/494490/post-doctoral-researcher-mechanical-engineering
and email Professor Malikopoulos if you have any questions about the position.

6.11. Postdoc: Beijing Institute of Technology, China
Contributed by: Sasa V. Rakovic, sasa.v.rakovic@gmail.com

Postdoctoral Fellows Positions at BIT: Two positions at the level of postdoctoral research fellows are available in the School of Automation, Beijing Institute of Technology (BIT), Beijing, China.

BIT, one of the national key universities in China, is the 10th university to enter Project 985. BIT is also one of the first 15 universities to join Project 211. In 2017, BIT was rated as a double first-class university. BIT's control science and engineering is rated as a double first-class discipline, and it ranks in the top 10 Chinese universities.

The positions are in the broad areas of model predictive control, learning and artificial intelligence. The fellows will work with, and under direct supervision of, Professor Saša V. Raković, and will be members of his research team. The candidates should have a strong background across a number of related disciplines including at least controls, dynamics, optimization, and systems as well as a solid background in artificial intelligence, learning and decision making. The candidates should also have an adequate degree of expertize in MATLAB or a closely related programming language. (Strong knowledge of English is required.)

The first position will focus on theory and implementation of model predictive control under constraints and uncertainty in general and tube model predictive control in particular. One of the main research goals for this position is to develop a systematic, rigorous and computable framework for tube model predictive control of nonlinear systems, while the project will also involve work on efficient numerical implementation of tube model predictive control in general and it might span work on a concrete real-life application.

The second position will investigate interactions of artificial intelligence and control theory in general as well as learning and model predictive control in particular. The position will focus on developing both theory and implementation for adaptive model predictive control. One of the main research goals for this position is to develop novel, rigorous, flexible (nonconservative) and computable methods for adaptive model predictive control. The project will also involve work on efficient numerical implementations of developed methods and it might span a work on a concrete real-life application.

Interested candidates should contact directly Prof. Saša V. Raković (sasa.v.rakovic@gmail.com) for pre-screening, and the candidates should support their interest with:
- CV that includes list of publications,
- Personal statement that includes details on why she/he would be ideal candidate for the position,
- Authored and published article that is most relevant for the advertised position, and
- Authored and published article that is most representative of candidate's research accomplishments.

The positions can commence as early as qualified candidates have been identified and have formally made a successful application. The remuneration is competitive, and each position is anticipated for a 2 year period.

6.12. Postdoc: Loughborough University, UK
Contributed by: Wen-Hua Chen, w.chen@lboro.ac.uk

Post-doctoral Research Associates in Goal-Oriented Control Systems (Two Positions) Research Associates in Goal-Oriented Control Systems (Two Positions) at Loughborough, UK

Job description: The post holders will contribute to the exciting research programme of a recently awarded EPSRC Established Career Fellowship to Prof Wen-Hua Chen. It aims to develop fundamental control theory for next generation of control systems. This was driven by the needs of moving from low levels to high levels of automation. Such an example could be found in unmanned aircraft systems, autonomous driving, precision agriculture, and fully automated warehouse and factory. The research focus will be on the interplay between disturbance, uncertainty, controlled dynamics, information processing, decision making/control strategy, environment, and constraints (e.g. safety, physical, or legal). The post holders will have an opportunity joining an international leading team working on cutting edge research. He/she will have opportunities to collaborate with industrial partners and international leading universities. It is expected that the post holders shall have strong analytical skills, and are interested in working on challenging theoretic problems in the engineering context.

There are two Post Doc Research Associates. One Research Associate will focus on advanced control theory (e.g. stability and performance under disturbance/uncertainty, multi-rate control, decentralised or hierarchical control). The other focuses on autonomy and computation aspects (e.g. temporal logic control, optimisation, and decision making). They will closely collaborate with each other and other members of the core Fellow team. We are looking for candidates with strong skills in one or several areas: model predictive control, optimisation, temporal logic control, large scale systems, hierarchical control systems, nonlinear control, and formal methods. We particularly welcome candidates with background in model predictive

control and temporal logic control (or formal method for control design). Applicants do not necessarily have experience in unmanned vehicles, robotics, or autonomous systems although it would be desirable.

Each position is for 3 years at the first instance, but it is possibly extendable up to 5 years.

Informal enquiries are welcomed and should be made to Professor Wen-Hua Chen, Department of Aeronautical and Automotive Engineering, by email at w.chen@lboro.ac.uk or by telephone on +44(0)1509 227230.

Tentative application closing date: 10 January 2020.

6.13. Postdoc: KTH, Sweden
Contributed by: Dimos Dimarogonas, dimos@kth.se

Postdoc scholarship in hybrid control of robotic systems at KTH

A postdoc scholarship in hybrid control of robotic systems is available at the Division of Decision and Control Systems at KTH, Stockholm, Sweden. Candidates should have obtained a PhD related to at least one of the following research areas:
- hybrid control of robotic systems
- multi-robot control systems
- formal methods for robot control synthesis.

More details can be found at

https://www.kth.se/en/om/work-at-kth/stipendier/postdoctoral-scholarship-in-hybrid-control-of-robotic-systems-1.941032

Deadline for applications: December 15, 2019. For more information please contact Dimos Dimarogonas at dimos@kth.se.

6.14. Postdoc: Cyber Physical Systems for Europe, EU
Contributed by: Sorin Olaru, sorin.olaru@centralesupelec.fr

MPC (model-based predictive control) based automaton for energy network congestions A postdoctoral position is available within CPS4EU (https://cps4eu.eu/) European project. The postdoctoral research will focus on the development of a control algorithm based on predictive control strategies to address the congestion on the transmission network. Within CPS4EU, the challenges that grid operators are facing to integrate the renewable energy sources (RES) where identified as a key demonstrator for the benefits of CPS design. The classical levers for this industrial application are represented by the network reconfiguration and the curtailment actions but an interest in large batteries is growing recently due to their potential in congestion management. All these levers are to be considered in a generic control design perspective and the methodology for a systematic design are to be developed.

More information on the project and application requirements, and how to apply online can be found here: http://bit.ly/35pVhOn

6.15. 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 sustainability. 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 experience programming in 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 December 15, although the position will remain open until filled.

6.16. Postdoc: University of Cambridge, UK
Contributed by: Ioannis Lestas, icl20@cam.ac.uk

Postdoctoral Researcher: Department of Engineering, University of Cambridge

One or more positions exist for a Research Assistant/Associate to work in the area of analysis and control of large scale networks, with applications in power systems and smart grids. The positions will be funded by an ERC grant. The appointment is for one year with the possibility for an extension.

Applicants with either a theoretical background in control, or research experience in power systems are encouraged to apply. Applicants with interests in biological networks will also be considered and are encouraged to apply.

Informal inquiries may be addressed to Dr Ioannis Lestas (email: icl20@cam.ac.uk). More details can be found at http://www.jobs.cam.ac.uk/job/24251/

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6.17. Faculty: NYU Abu Dhabi, United Arab Emirates
Contributed by: Samantha Grossman, seg330@nyu.edu

NYU Abu Dhabi – Electrical and Computer Engineering Assistant Professor – Tenure-Track

The Division of Engineering at NYU Abu Dhabi is searching for rising scholars to conduct important research and teach the next generation of global leaders. You are invited to apply for a tenure-track position in the broad area of electrical and computer engineering, with a particular interest in Robotics. The available opening is at the Assistant or Associate Professor ranks.

NYUAD has state-of-the-art research facilities in a new 15 acre campus on Saadiyat Island in Abu Dhabi, UAE. The core research infrastructure is especially noteworthy, with extensive and exceptional range of instruments for imaging, fabrication and characterization. In addition, the Engineering Division of NYUAD has close collaborations with the faculty and students at the NYU Tandon School of Engineering, and has access to the world-class research centers and infrastructure in New York. Students are drawn from around the globe, surpassing all traditional academic benchmarks. The NYU Abu Dhabi undergraduate student body has garnered an impressive record of scholarships, graduate-school appointments, and many other honors, including twelve Rhodes Scholarships since 2014. The NYUAD Global Ph.D. Fellowship program attracts the best talent from across the world for pursuing doctoral research on campus.

About NYU Abu Dhabi: NYU Abu Dhabi is a pioneer of higher education in a global world, dedicated to excellence in teaching and research, while advancing cooperation and progress on humanity's shared challenges. Part of the NYU global network, NYU Abu Dhabi offers an outstanding liberal arts and science education to students from the United Arab Emirates, United States, and around the world, focusing on intercultural understanding and leadership. It supports innovative research that pushes the frontiers of knowledge forward and responds in powerful and interdisciplinary ways to vital global and local questions. NYU Abu Dhabi advances NYU as a model university for the 21st century and contributes in multiple ways to the development of a sustainable, knowledge-based economy in Abu Dhabi. As an international center of excellence in teaching and research, our goal is to attract outstanding faculty who are leaders in their fields, encouraging them to create programs that draw outstanding students, and providing an intellectually rich environment.

Working for NYU Abu Dhabi: A world-class institution deserves world-class benefits. At NYUAD, we recognize that Abu Dhabi is more than where you work, it's your home and in order for you to research, teach, and thrive, we're offering a comprehensive benefits package to our top talent. Start with generous relocation allowances to ensure a smooth transition to Abu Dhabi, followed by competitive salaries, housing and transportation allowances, and educational assistance for your dependents. Health and wellness

services round out our offerings, plus more. Click here for more information on benefits for you and your dependents.

Qualifications:
- This position requires a Ph.D. degree in Electrical and Computer Engineering or related disciplines.
- We seek individuals who have, or have the potential to develop, a strong record of scholarship and have the ability to develop and lead high-quality research.
- It is also expected that the successful candidate will obtain affiliation at the NYU Tandon School of Engineering, which allows research and teaching privileges as well as access to programs and facilities in New York.

Application Instructions: To apply for this position, please submit the following items to:
https://apply.interfolio.com/68192
- CV
- Cover Letter
- Statement of Teaching Interests
- Recent teaching evaluations (if available)
- Statement of Research Plans
- Names and contact information for three (3) references. (Only referees of shortlisted candidates will be contacted.)

We will being reviewing applications on November 15, 2019. Shortlisted candidates are expected to be invited for campus visits in Abu Dhabi and New York early Spring 2020. We anticipate that successful candidates can start the appointment and relocate to Abu Dhabi in academic year 2020-2021. For questions about this position, please email nyuad.engineering@nyu.edu. If this sounds like you, apply now. Join NYU Abu Dhabi, an exceptional place for exceptional people. UAE Nationals are encouraged to apply.

6.18. Faculty: University of Virginia, USA
Contributed by: Zongli Lin, zl5y@virginia.edu

The School of Engineering and Applied Science at the University of Virginia (UVA) invites applications for a tenured full professor faculty appointment in the area of Cyber-Physical Systems. The primary appointment will be in the Department of Electrical and Computer Engineering (ECE), but the successful candidate is expected to play a dual role in ECE and the school-wide Link Lab (LL) – a focal point of cross-disciplinary research in Cyber-Physical Systems. The intent is to bring in a dynamic leader with a distinguished track record and the vision/momentum that will leverage existing strengths in ECE and the LL to aim even higher. The successful candidate will be one of the core faculty in the Link Lab and the Computer Engineering program within ECE, and will be expected to build and sustain a rapidly growing and highly visible research program in the broad CPS area. Optional secondary appointment in another Engineering department can also be considered, if relevant. Specific areas of interest include but are not limited to CPS for health and ageing, autonomous CPS, embedded CPS, CPS integration, and networked CPS.

More details on the position, the ECE Department, the Link Lab, the University of Virginia and the city of Charlottesville can be found here

https://bit.ly/2r7gHRi

Review of applications will begin on December 1, 2019 and will continue until the position is filled. For questions about the position, please contact the search committee chair, Prof. Zongli Lin, at zl5y@virginia.edu. For questions about the application process, please contact Richard Haverstrom at RKH6J@virginia.edu.

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6.19. Faculty: Yale University, USA
Contributed by: Vanessa Epps, vanessa.epps@yale.edu

Assistant Professor in System Engineering, Yale University

The Department of Electrical Engineering at Yale University is announcing a tenure track assistant professorship position. Candidates are sought with research and teaching interests in any area of systems engineering including intelligent and distributed control systems, communications and networking, optimization, and data science. A prospective candidate should have a PhD or equivalent degree in electrical engineering or a related field and should submit a curriculum vitae, teaching statement, and research plans through Interfolio at

http://apply.interfolio.com/70524.

In addition, each candidate should make arrangements for three people to submit letters of recommendation. The review of applications will begin on December 15, 2019 and will proceed until the position is filled.

Yale University is an Affirmative Action/Equal Opportunity employer. Yale values diversity among its students, staff, and faculty and strongly welcomes applications from women, persons with disabilities, protected veterans, and underrepresented minorities

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6.20. Faculty: Guangdong Technion Israel Institute of Technology, China
Contributed by: Sharon Geva, gtiitrecruit@technion.ac.il

Assistant, Associate and Full Professorships
Guangdong Technion Israel Institute of Technology (GTIIT)
Mechanical Engineering Program and Centers for Robotics, Sustainable World, Science & Engineering in Health & Medicine
Shantou, Guangdong Province, China

Technion – Israel Institute of Technology manages the academics of a new university established in Shantou City, Guangdong Province, China http://www.gtiit.edu.cn/en.

GTIIT follows the academic model of the Technion campus in Haifa, Israel. It is dedicated to high quality research and education in science and technology. Courses will be taught in English.
GTIIT has established undergraduate programs in Chemical Engineering, Biotechnology & Food Engineering and Materials Engineering.

An undergraduate program in Mathematics (major) with Computer science (minor) is expected to start in October 2020.

Guangdong Technion branch intends to launch an undergraduate education program in Mechanical Engineering, which will include Tracks for Robotics, Mechanics of materials and Energy. A graduate program in these areas will also be offered in coordination with the Technion's Graduate School.

GTIIT is also opening / establishing the Centers for Robotics, Science & Engineering in Health and Medicine and Sustainable World. Its members are expected to develop vigorous research program and commit to high-level teaching.

Tenure-track faculty positions at all ranks are now available for exceptional candidates, who will be appointed members of Mechanical Engineering teaching program and also members of one of the above mentioned Centers in the following areas:
- Robotics, mechatronics, dynamics and control
- Solidmechanics, bio- and opto-mechanics
- Micro- and nano-technology
- Computational fluid and solid mechanics
- Energy, thermofluids, propulsion technology
- Mechanical design and CAD, Additive manufacturing and 3-D printing

Members of the centers are expected to initiate and conduct intensive state-of-the-art research and to be involved in graduate students supervision and teaching of undergraduate courses.
GTIIT will offer generous start-up packages, modern research infrastructure, and qualified technical personnel. Successful candidates will be offered generous compensation, convenient housing and family care facilities in the beautiful and newly constructed campus.
Established research leaders in their fields will be provided with exceptional packages.
Several fixed-term teaching positions (non-research) are available in all fields of science for the undergraduate program.

Please send CV, list of publications, research plan and teaching statements to the Search Committee at: gtiitrecruit@technion.ac.il

6.21. Faculty: University of Waterloo, Canada
Contributed by: John W. Simpson-Porco, jwsimpson@uwaterloo.ca

Tenure-Track Position in Cyberphysical Systems at University of Waterloo

The Department of Electrical & Computer Engineering at the University of Waterloo invites applications for a tenure track position with an anticipated start date of July 1, 2020. We are seeking a promising researcher with a track record backed up through high-profile publications and demonstrated systems work (published artifacts, open source projects, public demonstrations) in the areas of embedded systems, robotics, or cyberphysical systems, with clear applications to automotive vehicle research. Strong candidates should be able to support collaborative interdisciplinary research in mechatronics research, and should have their

core research strength in a research area related to computer systems, dependability, or security. It is anticipated that the position will be at the rank of Assistant Professor. In exceptional cases, an appointment at the rank of Associate Professor or Full Professor may be considered.

Applicants must have a PhD in Electrical Engineering, Computer Engineering, Computer Science or a closely related discipline. Evidence of an actively developing research program is required. Duties will include research, teaching at the undergraduate and graduate level, supervising graduate students and professional service. In addition, the candidate will be expected to teach a mix of undergraduate courses with clear applicability to embedded systems, including: system security, distributed systems, dependability, and real-time systems. The successful candidate will be equally committed to ensuring excellence in undergraduate and graduate teaching as he or she is to research.

Based on qualifications and rank hired, annual salary will typically range from $100,000 to $150,000. For exceptionally qualified candidates, a higher annual salary will be considered. The successful candidate will be required to have an engineering license for practice in Canada or to apply for an engineering license or limited engineering license within five years.

Interested candidates should submit: a cover letter, a current curriculum vitae, a research statement, a statement of teaching philosophy and goals, selected publications (maximum four), and the names of at least three references to https://ecefas.uwaterloo.ca/OFAS/index.php.

Screening will begin immediately upon receipt of a complete application. To ensure full consideration, the application should be received before January 15, 2020.

The university is committed to leadership in technology-enabled learning. It is a vibrant community built around teaching excellence and scholarship in teaching, with direct and active institutional support through its Centre for Teaching Excellence and resources deployed in the faculties and departments. There is a strategic commitment to research-enhanced, technology-enhanced, and entrepreneurship-enhanced learning. The University of Waterloo excels at experiential learning via the world's largest post-secondary co-operative education program. For the past two decades, the University of Waterloo has been recognized in a national reputation survey of universities as 'best overall', 'most innovative', and producing 'leaders of tomorrow'. A recent survey of business leaders ranked Waterloo Engineering as number one in Canada.

The department currently has more than 95 faculty members and is one of the largest engineering departments in Canada. The undergraduate programs in Computer Engineering, Electrical Engineering, Software Engineering (offered jointly with the David R. Cheriton School of Computer Science).

Mechatronics Engineering (offered jointly with the Departments of Mechanical and Mechatronics Engineering and Systems Design Engineering), Nanotechnology Engineering (offered jointly with the Departments of Chemistry and Chemical Engineering), and Biomedical Engineering (offered jointly with several departments including Systems Design Engineering) attract outstanding students, both domestic and international. The department also administers a world-class graduate program, which drives cutting-edge research excelling in technological innovations and encompassing all major areas of electrical and computer engineering. Our research is led by faculty members who are internationally recognized for their expertise and holders of many prestigious awards (E. W. R. Steacie Memorial Fellowship, IEEE Fellowships, Royal

Society of Canada Fellowships, etc.) and research chairs. Our graduates are highly sought out all around the world for their exceptional technical training and abilities.

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 the recruitment committee via email: ece.recruiting@uwaterloo.ca.

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6.22. Faculty: ETH Zurich, Switzerland
Contributed by: Office for Faculty Affairs

Professor or Assistant Professor (Tenure Track) of Cyber-Physical and Embedded Systems The Department of Information Technology and Electrical Engineering (www.ee.ethz.ch) at ETH Zurich invites applications for the above-mentioned position.

The successful candidate is expected to develop a strong and visible research programme in the area of embedded systems. He or she has a strong background in areas such as cyber physical systems, real-time systems, embedded systems, embedded control, sensor networks, systems on chip (SoC), or related fields. An engineering approach to these topics as well as a research profile showing synergies with other research areas in the Department of Information Technology and Electrical Engineering is welcomed.

The new professor must be committed to innovative and engaging teaching at the bachelor's level on cyber physical systems/embedded systems and computer engineering as well as advanced classes in the Master programme on related topics such as hardware/software codesign of digital systems. Generally, at ETH Zurich undergraduate level courses are taught in German or English and graduate level courses in English.

Assistant professorships have been established to promote the careers of younger scientists. ETH Zurich implements a tenure track system equivalent to other top international universities. The level of the appointment will depend on the successful candidate's qualifications.

Please apply online: www.facultyaffairs.ethz.ch

Applications should include a curriculum vitae, a list of publications, a statement of future research and teaching interests, a description of the three most important achievements, and the names of five references. The letter of application should be addressed to the President of ETH Zurich, Prof. Dr. Joël Mesot. The closing date for applications is 31 January 2020. ETH Zurich is an equal opportunity and family friendly employer, strives to increase the number of women professors, and is responsive to the needs of dual career couples.

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6.23. Faculty: University of California, Berkeley, USA
Contributed by: Roberto Horowitz, horowitz@berkeley.edu

Assistant Professor Position in the Department of Mechanical Engineering, UC Berkeley University of California, Berkeley

The Department of Mechanical Engineering, University of California, Berkeley, seeks candidates for a tenure-track faculty position at the Assistant Professor level, starting July 1, 2020 or on a mutually agreed date thereafter. The department seeks candidates with expertise in one or more of the following: Fluid Mechanics; Energy Science and Technology; Design and Manufacturing; and Control and Robotics.

The department is committed to fostering interdisciplinary research that can address societal grand challenges including but not limited to:

- **Aerospace systems**: interpreted broadly, including aviation and space exploration. Areas of interest include but are not limited to ultra-efficient propulsion technologies and thermal management, green aviation, high-speed and hypersonic flight, vehicle design including active structures and materials that may sustain extreme thermal and mechanical loads, navigation and sensing technologies, and orbital and flight dynamics and control.

- **Sustainable technologies and systems** for enhancing energy efficiency and/or reducing environmental impact, including but not limited to solar power technologies, advanced wind turbines,wave power generation, storage and thermal management technologies that enhance power plant and energy conversion efficiency, green manufacturing, efficient water usage and desalination, and fundamental aspects of thermal sciences and energy conversion.

-**Autonomy and artificial intelligence** for enhanced performance, safety and quality of life. Examples include the use of emerging technologies in AI, machine learning, data science, 5G communication, IoT, sensing and control, and/or computation among others in aerospace, industry 4.0 and smart manufacturing, smart mobility, smart energy systems, human-autonomous system interaction, and other mechanical engineering application domains.

We seek candidates with exceptional promise in research, teaching and service, who will proactively contribute to our department's commitment to diversity, equity and inclusion. We may consider possible joint appointments with other UC Berkeley departments or College of Engineering-affiliated institutes.

Diversity, equity, and inclusion are core values in the College of Engineering. Our excellence can only be fully realized by faculty, students, and staff who share our commitment to these values. Successful candidates for our faculty positions will have to demonstrate evidence of a commitment to equity and inclusion. A statement on your contributions to diversity, equity, and inclusion, including information about your understanding of these topics, your record of activities to date, and your specific plans and goals for advancing equity and inclusion, if hired as a Berkeley faculty member, will be required as part of the application package. Please note that the statement may be evaluated as a standalone document. Financial and in-kind resources are available to pursue activities that help accelerate our efforts to achieve our equity and inclusion goals, with the full backing of the College. Guidelines to applicants on writing effective statements that demonstrate commitment to diversity, equity, and inclusion can be found at: https://ofew.berkeley.edu/recruitment/contributions-diversity/support-faculty-candidates.

Examples of ongoing programming in the College are available at:
https://engineering.berkeley.edu/diversity

Basic Qualifications: Applicants must have a Ph.D. (or equivalent international degree), or be enrolled in a Ph.D. or equivalent international degree granting program at the time of application.

Please provide names and contact information of three professional references who will send letters of recommendation. Recommenders providing letters of reference should submit them as early as possible, preferably by January 15, 2020. Candidates are responsible for asking their references to upload the letters as part of the online application process. All letters will be treated as confidential per University of California policy and California state law. Please refer potential letter-writers, including those who may provide letters via third party (i.e., dossier service or career center), to the University of California, Berkeley statement of confidentiality (http://apo.berkeley.edu/evalltr.html) prior to submitting their letters.

The deadline to apply is January 15, 2020 and applications received after the deadline will not be considered. The expected start date of the successful candidate is July 1, 2020.

The department is committed to addressing the family needs of faculty, including dual career couples and single parents. For more information please visit http://ofew.berkeley.edu/new-faculty. To learn more about the department please visit https://www.me.berkeley.edu/.

To apply, please go to https://aprecruit.berkeley.edu/apply/JPF02376.

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, disability, age or protected veteran status. For the complete University of California nondiscrimination and affirmative action policy see:
http://policy.ucop.edu/doc/4000376/NondiscrimAffirmAct.

For questions regarding this position, please contact: Debra Chin, debramchin@berkeley.edu.

6.24. Faculty: Arizona State University, USA
Contributed by: Daniel E. Rivera, daniel.rivera@asu.edu

Faculty Opening, Professor (all ranks) in Control Theory and Applications at Arizona State

The Ira A. Fulton Schools of Engineering (FSE) at Arizona State University (ASU) and the School for Engineering of Matter, Transport and Energy seek applicants for a tenure-track or tenured faculty position in control theory and applications. The appointment will be at the assistant, associate, or full professor rank commensurate with the candidate's experience and accomplishments, beginning August 2020. Although appointments may be in any of the six schools in the Ira A. Fulton Schools of Engineering, an appointment is expected to be in the School for Engineering of Matter, Transport and Energy (SEMTE).

Applicants may contribute to programs and leverage investments by the University in promoting interdisciplinary teaching and research. These investments include, among others: a multidisciplinary team of faculty working on robotics and autonomous systems (http://robotics.asu.edu); a new multidisciplinary Master's Degree in Robotics and Autonomous Systems (http://ras.engineering.asu.edu); the Global Security Initiative (https://globalsecurity.asu.edu/); ASU LightWorks (https://sustainability.asu.edu/lightworks/); the School of Earth and Space Exploration (http://sese.asu.edu); and the BioDesign Institute

(http://biodesign.asu.edu).

The current opening is intended to broaden our expertise and expand collaborations. The School for Engineering of Matter, Transport and Energy includes faculty who conduct research in the areas of dynamics, controls, and robotics, with expertise in soft robotics, multi-robot systems, bio-inspired robotics, rehabilitation robotics, control of stochastic systems, system identification, robust control, nonlinear systems and control, infinite-dimensional systems and control, convex and non-convex optimization, control of and over networks, and machine learning.

Faculty members are expected to develop an internationally recognized and externally funded research program, teach undergraduate and graduate courses, mentor undergraduate and graduate students, foster and contribute to inclusive work environment, and undertake service activities.

Required and desired qualifications, materials to submit, and other relevant information can be found in

https://apply.interfolio.com/70485

Application deadline is December 31, 2019. Applications will continue to be accepted beyond Dec. 31st on a rolling basis for a reserve pool. For more information or questions about this position, please contact the search committee co-chairs, Professor Daniel Rivera and Professor Spring Berman, via email at daniel.rivera@asu.edu and spring.berman@asu.edu. Arizona State University is a VEVRAA Federal Contractor and an Equal Opportunity/Affirmative Action Employer. All qualified applicants will be considered without regard to race, color, sex, religion, national origin, disability, protected veteran status, or any other basis protected by law.

6.25. Faculty: United States Naval Academy, USA
Contributed by: Tracie Severson, severson@usna.edu

Assistant Professor in Robotics and Control Engineering at the United States Naval Academy

The Weapons, Robotics, and Control (WRC) Engineering Department at the United States Naval Academy invites applications for a tenure-track position at the rank of Assistant Professor to begin as early as the Fall semester of 2020. Candidates with a background in embedded systems, sensor networks, and/or cyber physical systems are particularly encouraged to apply although all qualified candidates will be considered.

The WRC department is a mix of civilian and military professors whose focus is on quality instruction in small classes that average no more than twenty students. Engineering labs are equipped with state of the art cyber-physical automation and control testbeds, machine vision and robotics platforms, and rapid prototyping tools. A permanent technical staff works closely with the faculty to support a deep commitment to project based learning, embodied by the "design spine" that runs through the major. Faculty in the department represent a broad range of academic disciplines and work closely with counterparts in Electrical Engineering, Mechanical Engineering, and Computer Science for both research and undergraduate education.

USNA is uniquely positioned to support interdisciplinary research, particularly in cyber physical systems. Hopper Hall, opening in the Fall of 2020, will be the Navy's academic center for cyber research and education. Among many bespoke lab facilities, Hopper Hall will house a 100,000 gallon pool with aerial and aquatic motion capture systems for cooperative multi-domain robotics, a fully instrumented high bay for aerial robotics, and a Sensitive Compartmented Information Facility (SCIF) for classified research. All tenure track faculty are expected to produce peer reviewed research and contribute to their academic communities.

USNA is among the most geographically diverse colleges in the United States. The student body, known as the Brigade of Midshipmen, is composed of undergraduates from all 50 states and 29 countries. We seek candidates who are interested in contributing to our diverse academic community, and who support and demonstrate a strong commitment to undergraduate education. In addition to academics, opportunities exist for faculty involvement in a broad range of midshipmen activities such as summer sailing programs and varsity and club-level athletics.

This is a 10-month, tenure-track federal excepted service position. Salary for this position will be commensurate with experience and qualifications.

Minimum Qualification:
• A Ph.D. in an engineering discipline is required (anticipated completion of Ph.D. no later than June 2020 is acceptable).

Preferred qualifications:
• Background in embedded systems, sensor networks, and/or cyber physical systems
• Familiarity with MATLAB and C

How to apply for position: Interested candidates should send a cover letter, teaching and research statements, curriculum vitae, and arrange for three references that address both teaching and research abilities to be sent to Prof. B.E. Bishop, Chair of the Weapons, Robotics, and Control Engineering Department, at robotics-and-control-engineering-hiring-2020-group@usna.edu.

Please note: Applications will be reviewed beginning December 1, 2019. The position will remain open until filled.

Conditions of Employment:
• U.S. Citizenship Required
• All Civilian Faculty Positions at USNA are subject to a background investigation. The selected candidate will be subject to a security investigation leading to successful completion of a background investigation with a favorable adjudication. The selectee's failure to meet this requirement will be grounds for termination. More information about the background investigation process can be found at the Academic Dean and Provost's website here http://www.usna.edu/Academics/Faculty-Information/Background-Investigation-Info.php.

6.26. Research Engineer: Siemens Industry Software, Belgium
Contributed by: , son.tong@siemens.com

Research Engineer: Siemens Industry Software NV
Full-time position: ADAS/Autonomous driving, and control systems researcher
Location: Leuven, Belgium

We are looking for two researchers to join the Simcenter R&D team in Siemens Industry Software NV. You will carry out research studies in different R&D projects on ADAS, autonomous driving and control systems topics.

The works will aim at developing and applying state-of-art control and machine learning models to autonomous vehicle control testing. The design objectives are to enhance safety and comfort driving. The testing is in both virtual and physical environments, i.e. model-in-the-loop (MiL), software-in-the-loop (SiL), and hardware-in-the-loop (HiL). Apply online here:

1. ADAS / Controls Researcher

https://jobs.siemens-info.com/jobs/186786

2. ADAS Performance Engineering Researcher

https://jobs.siemens-info.com/jobs/186793