E-Letter on Systems, Control, & Signal Processing
Issue 371, July 2019

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Welcome to Issue 371 of the CSS E-letter available here.

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

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

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4.4 IET Control Theory & Applications
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4.12 Annual Reviews in Control
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6.15 Postdoc: Eindhoven University of Technology, The Netherlands
6.16 Postdoc: University of California Irvine, USA
6.17 Postdoc: University of New South Wales, Australia
6.18 Postdoc: Linkoping University, Sweden

1   IEEE CSS Headlines

1.1. CSS Distinguished Lecturers Program
Contributed by: Tariq Samad, tsamad@umn.edu

For those who do not know about it, and to remind those who do: IEEE Control Systems Society has a Distinguished Lecturers Program that provides travel support for lectures organized by IEEE chapters, sections, subsections, and student groups.

IEEE CSS will pay transportation costs at the lecturer's point of origin and round-trip airfare to the destination. The local organizers are responsible for costs associated with ground transportation at the destination, hotel, meals, and incidental expenses.

Thirteen Distinguished Lecturers are currently appointed, covering a diversity of control-related topics and from institutions worldwide. For the list of lecturers and topics and other details about the program, please visit http://ieeecss.org/pages/distinguished-lecturers-program.

We encourage the controls community to take advantage of the program. Questions can be sent to the Distinguished Lecturers Program chair, Tariq Samad, at tsamad@umn.edu.

1.2. 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:

- 57th Allerton Conference on Communication, Control, and Computing. Monticello, United States. Sep 24–Sep 27, 2019. https://allerton.csl.illinois.edu/

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

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

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

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

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

conferences please visit http://ieeecss.org/conferences

1.3. IEEE Control Systems Society 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.

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

IEEE Transactions on Automatic Control
Volume 64 (2019), Issue 7 (July)
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Technical Notes and Correspondence:

1.5. IEEE Transactions on Control Systems Technology
Contributed by: Andrea Serrani, eic-ieeetcst@osu.edu

IEEE Transactions on Control Systems Technology
Volume 27 (2019), Issue 4 (July)

Regular Papers:

Brief Papers:

Mezouar, G. López-Nicolás, and C. Sagüés, page 1703

- Consensus Vibration Control for Large Flexible Structures of Spacecraft With Modified Positive Position Feedback Control, N. Qi, Q. Yuan, Y. Liu, M. Huo, and S. Cao, page 1712

- Observer Design for Self-Sensing of Solenoid Actuators With Application to Soft Landing, T. Braun, J. Reuter, and J. Rudolph, page 1720

- A Simple Discrete-Time Tracking Differentiator and Its Application to Speed and Position Detection System for a Maglev Train, H. Zhang, Y. Xie, G. Xiao, C. Zhai, and Z. Long, page 1728

- Semiadaptive Infusion Control of Medications With Excitatory Dose-Dependent Effects, J. Zhu, X. Jin, R. Bighamian, C.-S. Kim, S. T. Shipley, and J.-O. Hahn, page 1735

- CART3 Field Tests for Wind Turbine Region-2 Operation With Extremum Seeking Controllers, Y. Xiao, Y. Li, and M. A. Rotea, page 1744

- Hierarchical Multiobjective H-Infinity Robust Control Design for Wireless Power Transfer System Using Genetic Algorithm, M. Yang, Y. Li, H. Du, C. Li, and Z. He, page 1753

- Design of a Piecewise Affine H Infinity Controller for MR Semiactive Suspensions With Nonlinear Constraints, J. Wu, Z. Liu, and W. Chen, page 1762

- Adaptive Optimal Control of Heterogeneous CACC System With Uncertain Dynamics, Y. Zhu, D. Zhao, and Z. Zhong, page 1772

- A Novel Hybrid Method Integrating ICA-PCA With Relevant Vector Machine for Multivariate Process Monitoring, Y. Xu, S.-Q. Shen, Y.-L. He, and Q.-X. Zhu, page 1780

- Remaining Useful Life Prediction of Lithium-Ion Battery Based on Gauss–Hermite Particle Filter, Y. Ma, Y. Chen, X. Zhou, and H. Chen, page 1788

- Adaptive Fixed-Time Six-DOF Tracking Control for Noncooperative Spacecraft Fly-Around Mission, Y. Huang and Y. Jia, page 1796

- An Adaptive Control-Based Approach for 1-Click Gripping of Novel Objects Using a Robotic Manipulator, Z. Ding, N. Paperno, K. Prakash, and A. Behal, page 1805

- Performance-Enhanced Robust Iterative Learning Control With Experimental Application to PMSM Position Tracking, S. Mandra, K. Galkowski, E. Rogers, A. Rauh, and H. Aschemann, page 1813

- Estimation and Control of Wind Turbine Tower Vibrations Based on Individual Blade-Pitch Strategies, W. H. Lio, B. L. Jones, and J. A. Rossiter, page 1820

- Physical Models and Control of the Train Dynamics in a Metro Line Without Junction, N. Farhi, page 1829

- Adaptive and Unconventional Strategies for Engine Knock Control, D. Selmanaj, G. Panzani, S. van Dooren, J. Rosgren, and C. Onder, page 1838

Comments and Corrections:

- Comment on "Fixed-Time Attitude Control for Rigid Spacecraft With Actuator Saturation and Faults," S. M. Esmailzadeh and M. Golestani, page 1846

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

IEEE Control Systems Letters
Volume 3 (2019), Issue 3 (July)

Please note that IEEE Control Systems Letters is accessible in IEEE Xplore through the web page: http://ieeexplore.ieee.org/xpl/RecentIssue.jsp?punumber=7782633

Papers:

- A Simultaneous Adaptation Law for a Class of Nonlinearly Parametrized Switched Systems, S. Roy and S. Baldi – p. 487
- Correction to "An Uncertainty-Based Control Lyapunov Approach for Control-Affine Systems Modeled by Gaussian Process", J. Umlauft, L. Pöhler, and S. Hirche – p. 493
- Bipartite Consensus in Networked Euler–Lagrange Systems With Uncertain Parameters Under a Cooperation Competition Network Topology, J. Liu, H. Li, and J. Luo – p. 494
- Lyapunov Functions for Shuffle Asymptotic Stability of Discrete-Time Switched Systems, A. Girard and P. Mason – p. 499
- Adaptive Consensus of Nonlinearly Parameterized Multi-Agent Systems, I. H. Imran, Z. Chen, Y. Yan, and M. Fu – p. 505
- Linear-Quadratic Mean-Field-Type Games With Multiple Input Constraints, J. Barreiro-Gomez, T. E. Duncan, and H. Tembine – p. 511
- Optimal Stochastic Evasive Maneuvers Using the Schrodinger's Equation, F. Farokhi and M. Egerstedt – p. 517
- Estimating Private Beliefs of Bayesian Agents Based on Observed Decisions, R. Mattila, I. Lourenço, C. R. Rojas, V. Krishnamurthy, and B. Wahlberg – p. 523
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- A New Bounded Confidence Model Seeking Structural Balance, H. D. Aghbolagh, M. Zamani, and Z. Chen – p. 541
- Information Bounds for State Estimation in the Presence of an Eavesdropper, A. S. Leong, D. E. Quevedo, D. Dolz, and S. Dey – p. 547
- Control Technique for Synchronization of Selected Nodes in Directed Networks, B. Ursino, L. V. Gambuzza, V. Latora, and M. Frasca – p. 553
- On DoS Resiliency Analysis of Networked Control Systems: Trade-Off Between Jamming Actions and Network Delays, R. Merco, F. Ferrante, and P. Pisu – p. 559
- Filter-Based Feedback Control for a Class of Markovian Open Quantum, Y. Liu, D. Dong, I. R. Petersen, and H. Yonezawa – p. 565
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- H2 Control Under Intermittent Sampling and Small Communication Delays, A. Goldenshluger and L. Mirkin – p. 583
- Data-Driven Minimum-Energy Controls for Linear Systems, G. Baggio, V. Katewa, and F. Pasqualetti – p. 589
- Leader–Follower Bipartite Consensus of Uncertain Linear Multiagent Systems With External Bounded Disturbances Over Signed Directed Graph, S. Bhowmick and S. Panja – p. 595

- Decoupling Multivariate Polynomials for Nonlinear State-Space Models, J. Decuyper, P. Dreesen, J. Schoukens, M. C. Runacres, and K. Tiels – p. 745
- On Reachability and Null-Controllability of Nonstrict Convex Processes, J. Eising and M. K. Camlibel – p. 751
- Control Barrier Functions for Multi-Agent Systems Under Conflicting Local Signal Temporal Logic Tasks, L. Lindemann and D. V. Dimarogonas – p. 757
- An Observer-Based Output Feedback Controller for the Finite-Time Stabilization of Markov Jump Linear Systems, G. Tartaglione, M. Ariola, and F. Amato – p. 763
- Gaussianity-Preserving Event-Based State Estimation With an FIR-Based Stochastic Trigger, E. J. Schmitt, B. Noack, W. Krippner, and U. D. Hanebeck – p. 769
- Vector Autoregressive POMDP Model Learning and Planning for Human–Robot Collaboration, W. Zheng and H. Lin – p. 775

1.7. IEEE Transactions on Control of Network Systems
Contributed by: Maureen Stanton, stanton@bu.edu

IEEE Transactions on Control of Network Systems
Volume 6 (2019), Issue 2 (June)
The Table of Contents, with links to abstracts, is available on
http://sites.bu.edu/tcns/june-2019/

Papers:

- Structural Oscillatory Analysis of Boolean Networks S.-I. Azuma, T. Yoshida, and T. Sugie p. 464
- Broadcast and Gossip Stochastic Average Consensus Algorithms in Directed Topologies D. Silvestre, J. P. Hespanha, and C. Silvestre p. 474
- Locality in Network Optimization P. Rebeschini and S. Tatikonda p. 487
- Mitigation and Recovery From Cascading Failures in Interdependent Networks Under Uncertainty D. Z. Tootaghaj, N. Bartolini, H. Khamfroush, T. He, N. R. Chaudhuri, and T. L. Porta p. 501
- Output Synchronization of Unknown Heterogeneous Agents via Distributed Model Reference Adaptation S. Baldi, S. Yuan, and P. Frasca p. 515
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- Time-Varying Output Formation Containment of General Linear Homogeneous and Heterogeneous Multiagent Systems S. Zuo, Y. Song, F. L. Lewis, and A. Davoudi p. 537
- Tracking and Control of Gauss–Markov Processes over Packet-Drop Channels with Acknowledgments A. Khina, V. Kostina, A. Khisti, and B. Hassibi p. 549
- Leader Tracking of Euler–Lagrange Agents on Directed Switching Networks Using a Model-Independent Algorithm M. Ye, B. D. O. Anderson, and C. Yu p. 561
- Hybrid Interconnection of Iterative Bidding and Power Network Dynamics for Frequency Regulation and Optimal Dispatch T. Steph, A. Cherukuri, C. De Persis, A. van der Schaft, and J. Cortés p. 572
- Hierarchical-Structure-Based Fault Estimation and Fault-Tolerant Control for Multiagent Systems C. Liu, B. Jiang, R. J. Patton, and K. Zhang p. 586

2 Miscellaneous

2.1. International Graduate School on Control, France
Contributed by: Francoise Lamnabhi-Lagarrigue, francoise.lamnabhi-lagarrigue@l2s.centralesupelec.fr

2020 International Graduate School on Control (EECI-IGSC-2020)

The advanced programme of the 2020 International Graduate School on Control (EECI-IGSC-2020) can be consulted here:
http://eeciinstitute.web-events.net/igsc-program-2020/

Early Registration opens in October 2019. The deadline for advance registration to the modules M01 to M09 is 12 January 2020 and to the modules M10 to M25 is 8 March 2020.

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2.2. Kimura Best Paper Award of Asian Journal of Control
Contributed by: Li-Chen Fu, lichen@ntu.edu.tw

Second Kimura Best Paper Award of Asian Journal of Control

Asian Journal Control has been holding the Asian Journal of Control Best Paper Award since 2001. The Award aims to recognize papers that have distinguished contribution and innovation in the field of control science and engineering. Starting from 2018, with the generous donation from Prof. Hidenori Kimura, we have decided to re-name the award as Kimura Best Paper Award. This year, the Award was presented at ASCC2019 in Kitakyushu, Fukuoka, Japan.

We are pleased to announce that the awardee of 2nd Kimura Best Paper Award of Asian Journal of Control is:

Paper title: Influence of the Tensor Product Model Representation of qLPV Models on the Feasibility of Linear Matrix Inequality based Stability Analysis
Authors: Alexandra Szollosi and Peter Baranyi
Vol. 20, No. 1, pp. 531–547, January 2018
DOI: 10.1002/asjc.1566
URL: https://onlinelibrary.wiley.com/doi/full/10.1002/asjc.1566

Abstract:
The paper investigates and proves the statement, that the convex hull of the polytopic tensor product (TP) model representation influences the feasibility of linear matrix inequality (LMI) based stability analysis methods. The proof is based on a complex stability analysis example of a given quasi linear parameter varying (qLPV) state-space model. Specifically, the three degree of freedom (3-DoF) aeroelastic wing section model including Stribeck friction is used as the tool for the example model. The proof is achieved by utilizing TP model transformation and LMI based tools. As a first step, numerous TP model type control solutions holding different convex hulls are systematically derived of the qLPV model via LMI based control design methods. As a second step, each control solution is further equivalently transformed for different

TP model representations holding different convex hulls. Finally, the stability of all solutions over all TP model representations are checked via LMI based stability analysis methods. As a result of the two steps, a two dimensional (2D) convex hull space is attained for the 3-DoF aeroelastic wing section model. The two dimensions are denoted by the LMI based control design and the LMI based stability analysis for different convex hulls. Based on the numerical results, a detailed, comprehensive analysis is provided. The paper as a novelty proves the statement, that the polytopic TP model representation of a given control solution strongly influences the feasibility of LMI based stability analysis methods.

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2.3. Summer School of on Control of Computing Systems, France
Contributed by: Mirko Fiacchini, mirko.fiacchini@gipsa-lab.fr

The 40th Summer School of Automatic Control on *Control of Computing Systems*, Grenoble, France
September, 09-13, 2019
More information at http://www.gipsa-lab.fr/summerschool/auto2019/home.html

Confirmed lecturers:
Karl-Erik Årzén, Lund University, Sweden
Lydia Y. Chen, TU Delft, Netherlands
Gwenaël Delaval, Université Grenoble Alpes, France
Niklas Karlsson, Verizon Media, CA USA
Eric Kerrigan, Imperial College London, UK
Stéphane Lafortune, University of Michigan, MI USA
Daniel Simon, INRIA Montpellier, France
Eric Rutten, INRIA Grenoble Rhône Alpes, France
Bogdan Robu, Université Grenoble Alpes, France

Self-managing or autonomic computing systems are answering to the need to address dynamic variations in the computing, memory or communication loads, as well as in their environment, the evolutions in their computing infrastructure (shared or subject to faults) or (re)adaptations of their initial functionalities. Their administration, usually performed by human administrators, needs to be automated in order to be efficient, safe and highly reactive. The Autonomic Computing paradigm using self-manageable closed loops emerged in the early 2000, targeting distributed system and addressing these questions from a computer science point of view. A particularly insightful way of building such control loops is to use control systems theory, which employs a large spectrum of modelling, estimation and control techniques (continuous, discrete, stochastic), classically applied mostly to electro-mechanical, physical systems, but much less usually to computing systems.

The aim of this Summer School is to offer the opportunity of a scientific forum from control systems, informatics, distributed systems, around the various challenges and methodologies dedicated to the control of computing systems. To this end, domain experts will be present to share their expertise and cutting-edge research results. The School will consist of a series of surveys, lectures and research talks taught in English, completed by a series of applications sessions.

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2.4. The 8th oCPS PhD School on Cyber-Physical Systems, The Netherlands
Contributed by: Maurice Heemels, m.heemels@tue.nl

We would like to attract your attention to the "8th oCPS PhD School on Cyber-Physical Systems" (http://ocps-itn.eu/ocps-fall-school/), which will take place Monday October 28 to Thursday October 31, 2019 in Eindhoven, The Netherlands.

The school is targeted at graduate students and researchers who want to learn the main concepts of cyber-physical systems (CPSs), as well as at graduate students and postgraduate researchers already working in the area. The school is an event organized by oCPS, which is a Training Network (Marie Curie) receiving funding from the European Union's 2020 framework programme for research and innovation, see more on ocps.ele.tue.nl.

The lecturers are:
Prof. Twan Basten, Eindhoven University of Technology, NL
Prof. Alberto Bemporad, IMT Lucca, Italy
Prof. Henk Corporaal, Eindhoven University of Technology, NL
Prof. Bart De Schutter, Delft University of Technology, NL
Prof. Maurice Heemels, Eindhoven University of Technology, NL
Prof. Axel Jantsch, TUW, Austria
Prof. Karl Johansson, KTH, Sweden
Prof. Jan Lunze, Ruhruniversitaet Bochum, Germany
Prof. Frits Vaandrager, Nijmegen University, NL
Dr. Dip Goswami, Eindhoven University of Technology, NL

A few additional speakers will be announced soon.

The oCPS Fall School will cover various aspects of CPS design focussing on the following aspects:
• Model-driven design and performance analysis
• Security challenges in CPS
• Networked and distributed CPS
• Learning techniques in CPS
• Data-intensive and resource-aware CPS
• Industrial model predictive control (MPC)
• Platform-awareness and self-awareness in CPS

The presentations will cover applications domains ranging from flexible manufacturing, automotive and platooning, and smart imaging to smart grids.
The program of the school includes four days of lectures, interleaved by enough time slots to allow scientific discussions among the participants and
with the speakers.

Registration deadline: 30 September 2019 (due to the high number of expected participants, we encourage attendees to register ASAP). The registration will be restricted to 40 attendees and registration can be at http://ocps-itn.eu/ocps-fall-school/ [website will open soon].

The oCPS PhD school on Cyber-Physical Systems is also the 9th edition of a series of biannual PhD schools with a focus on hybrid, networked and cyber-physical systems, which educated over 600 PhD students (!) worldwide since 2003, see http://ocps17.imtlucca.it for earlier editions!!

Credit points: Doctoral students attending the oCPS Fall school will be awarded with 1 EC. Attendees that present a demo and/or a poster will be awarded 2 EC (registration is needed).

The full program of the school, other information and the registration procedure can be found soon at http://ocps-itn.eu/ocps-fall-school/ . We welcome you, your students and colleagues to this interesting and inspiring event!

Maurice Heemels
Twan Basten
Dip Goswami
Victor Sanchez
Alberto Bemporad

3 Books

3.1. Fixed-Time Cooperative Control of Multi-Agent Systems
Contributed by: Laura Burgess, laura.burgess@springer.com

Fixed-Time Cooperative Control of Multi-Agent Systems by Zongyu Zuo, Qing-Long Han and Boda Ning
ISBN: 978-3-030-20278-1
August 2019, Springer
Hardcover, 153 pages, \$149.99/€124,79
https://www.springer.com/gb/book/9783030202781

This monograph presents new theories and methods for fixed-time cooperative control of multi-agent systems. Fundamental concepts of fixed-time stability and stabilization are introduced with insightful understanding. This book presents solutions for several problems of fixed-time cooperative control using systematic design methods.

The book compares fixed-time cooperative control with asymptotic cooperative control, demonstrating how the former can achieve better closed-loop performance and disturbance rejection properties. It also discusses the differences from finite-time control, and shows how fixed-time cooperative control can produce the faster rate of convergence and provide an explicit estimate of the settling time independent of initial conditions. This monograph presents multiple applications of fixed-time control schemes, including to distributed optimization of multi-agent systems, making it useful to students, researchers and engineers alike.

Introduction
- Fixed-Time Stability and Stabilization
- Fixed-Time Cooperative Control for Second-Order Multi-Agent Systems
- Fixed-Time Cooperative Control for High-Order Multi-Agent Systems
- Fixed-Time Cooperative Control for Nonholonomic Chained-Form Multi-Agent Systems
- Distributed Optimization: An Edge-Based Fixed-Time Consensus Approach
- Distributed Optimization with Preserved Network Connectivity

3.2. Piezoelectric Actuators: Vector Control Method
Contributed by: Sonnini Yura, s.yura@elsevier.com

Piezoelectric Actuators: Vector Control Method. Basic, Modeling and Mechatronic Design of Ultrasonic Devices by Frederic Giraud and Christophe Giraud-Audine
ISBN: 9780128141861
Published Date: 23rd April 2019, Butterworth-Heinemann
Paperback, 212 pages, \$150
https://www.elsevier.com/books/piezoelectric-actuators-vector-control-method/giraud/978-0-12-814186-1

Piezoelectric Actuators: Vector Control Method: Base, Modeling and Mechatronic Design of Ultrasonic Devices guides researchers and engineers through the process of implementing the vector control method

(VCM) in their systems. The book presents which measurements can be made, how to visualize a variable as a rotating vector, about the angular position of the rotating reference frame, how to calculate the parameters of the controllers, and how to observe key variables. Additionally, the book focuses on the modeling of PE ultrasonic transducers and investigates the energy conversion process in an ultrasonic transducer.

Presents the fundamentals of the VCM at a basic level for researchers and practitioners who are new to the field Simulates several MATLAB and Simulink examples for deeper learning of the subject Presents the application to several test cases, with actual measurements obtained on experimental test benches Describes practical implementations of the method

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Chapter 1. Introduction
Chapter 2. Dynamicmodeling of piezoelectric media
Chapter 3. Modeling in a rotating reference frame
Chapter 4. Control in the rotating reference frame
Chapter 5. Applications
Chapter 6. Practical implementation

3.3. Nature-Inspired Optimization Algorithms for Fuzzy Controlled Servo Systems
Contributed by: Sonnini Yura, s.yura@elsevier.com

Nature-Inspired Optimization Algorithms for Fuzzy Controlled Servo Systems by Radu-Emil Precup and Radu-Codrut David
ISBN: 9780128163580
Published Date: 23rd April 2019, Butterworth-Heinemann
Paperback, 148 pages, $130
https://bit.ly/2FIKPXR

Nature-inspired Optimization Algorithms for Fuzzy Controlled Servo Systemsexplains fuzzy control in servo systems in a way that doesn't require any solid mathematical prerequisite. Analysis and design methodologies are covered, along with specific applications to servo systems and representative case studies. The theoretical approaches presented throughout the book are validated by the illustration of digital simulation and real-time experimental results. This book is a great resource for a wide variety of readers, including graduate students, engineers (designers, practitioners and researchers), and everyone who faces challenging control problems.

Merges classical and modern approaches to fuzzy control Presents, in a unified structure, the essential aspects regarding fuzzy control in servo systems Explains notions of fuzzy set theory and fuzzy control to readers with limited experience

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Chapter 1. Introduction

Chapter 2. Nature-inspired algorithms for the optimal tuning of fuzzy controllers
Chapter 3. Adaptive nature-inspired algorithms for the optimal tuning of fuzzy controllers
Chapter 4. Hybrid nature-inspired algorithms for the optimal tuning of fuzzy controllers
Chapter 5. Conclusions

3.4. A Dynamical Systems Theory of Thermodynamics
Contributed by: Wassim M. Haddad, wm.haddad@aerospace.gatech.edu

A Dynamical Systems Theory of Thermodynamics
A brand-new conceptual look at dynamical thermodynamics
https://press.princeton.edu/titles/17188.html

This book merges the two universalisms of thermodynamics and dynamical systems theory in a single compendium, with the latter providing an ideal language for the former, to develop a new and unique framework for dynamical thermodynamics. In particular, the book uses system-theoretic ideas to bring coherence, clarity, and precision to an important and poorly understood classical area of science. The dynamical systems formalism captures all of the key aspects of thermodynamics, including its fundamental laws, while providing a mathematically rigorous formulation for thermodynamical systems out of equilibrium by unifying the theory of mechanics with that of classical thermodynamics.

Contents

3.5. Networked Control of Multi-Agent Systems
Contributed by: Jan Lunze, Lunze@atp.rub.de

Networked Control of Multi-Agent Systems:
- Consensus and synchronisation
- Communication structure design
- Self-organisation in networked systems
- Event-triggered control

1st edition 2019, XXIII, 715 pp.
Hardcover 74,95€
BookmundoDirect, ISBN 9789463867139

This is the first textbook about networked control that gives a thorough introduction to the graph-theoretical and systems-theoretical foundations and presents the solutions of various analysis and design problems. After starting with consensus and synchronisation as the classical problems of the field, it continues with the communication structure design of networked controllers and with self-organised and event-triggered control, which are novel problems for which solutions have been elaborated recently.

Contents

- Algebraic graph theory
- Consensus in multi-agent systems
- Synchronisation
- Design of the communication structure of networked controllers
- Random graphs
- Consensus and synchronisation with random communication
- Self-organisation in networked systems
- Event-triggered control

The book demonstrates networked control by 75 numerical examples and application studies, includes 112 exercises, most of them with solutions, provides supplementary material on matrix algebra probability theory and the analysis of graphs with MATLAB.

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3.6. Fuzzy System Identification and Adaptive Control
Contributed by: Laura Burgess, laura.burgess@springer.com

Fuzzy System Identification and Adaptive Control by Ruiyun Qi, Gang Tao, Bin Jiang
ISBN: 978-3-030-19881-7
June 2019, Springer
Hardcover, 282 pages, \$169.99/€145,59
https://www.springer.com/gb/book/9783030198817

This book provides readers with a systematic and unified framework for identification and adaptive control of Takagi–Sugeno (T–S) fuzzy systems. Its design techniques help readers applying these powerful tools to solve challenging nonlinear control problems. The book embodies a systematic study of fuzzy system identification and control problems, using T–S fuzzy system tools for both function approximation and feedback control of nonlinear systems. Alongside this framework, the book also:

• introduces basic concepts of fuzzy sets, logic and inference system;
• discusses important properties of T–S fuzzy systems;
• develops offline and online identification algorithms for T–S fuzzy systems;
• investigates the various controller structures and corresponding design conditions for adaptive control of continuous-time T–S fuzzy systems;
• develops adaptive control algorithms for discrete-time input–output form T–S fuzzy systems with much relaxed design conditions, and discrete-time state-space T–S fuzzy systems; and
• designs stable parameter-adaptation algorithms for both linearly and nonlinearly parameterized T–S fuzzy systems.

The authors address adaptive fault compensation problems for T–S fuzzy systems subject to actuator faults. They cover a broad spectrum of related technical topics and to develop a substantial set of adaptive nonlinear system control tools. Fuzzy System Identification and Adaptive Control helps engineers in the mechanical, electrical and aerospace fields, to solve complex control design problems. The book can be used as a reference for researchers and academics in nonlinear, intelligent, adaptive and fault-tolerant control.

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

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ISSN 2225-0530

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4.6. International Journal of Control
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4.7. International Journal of Applied Mathematics and Computer Science
Contributed by: , amcs@uz.zgora.pl

International Journal of Applied Mathematics and Computer Science (AMCS)
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4.8. International Journal of Control, Automation, and Systems
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Contributed by: Marquita Druker, mdruker@annualreviews.org

Volume 2 of the Annual Review of Control, Robotics, and Autonomous Systems, edited by Naomi Ehrich Leonard, is now online. The journal provides comprehensive reviews of significant theoretical and applied developments that impact the engineering of autonomous and semiautonomous systems. The broad fields of control and robotics are the major areas covered, together with connections to theoretical and applied mechanics, optimization, communication, information theory, machine learning, computing, and signal processing.

The journal will cover important intersections with fields outside of engineering, including biology, neuroscience, and human behavioral sciences. Available online now:
https://www.annualreviews.org/toc/control/2/1

4.10. Automatica
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4.11. Journal of Process Control
Contributed by: John Coca, j.coca@elsevier.com

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Contributed by: John Coca, j.coca@elsevier.com

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4.18. CFP: IEEE TMECH: AI-based Monitoring in Smart Manufacturing
Contributed by: Ye Yuan, yye@hust.edu.cn

CFP: IEEE TMECH Focused Section on AI-based Monitoring in Smart Manufacturing (AISM)

https://engineering.purdue.edu/TMECH/focus_sections/flyers/2020Oct_FS-AISM_CFP.pdf

Smart manufacturing, which takes advantages of advanced information technologies and rapidly developing artificial intelligence (AI) into entire production processes, offers improved production quality and cost reduction through effective monitoring and managing the manufacturing systems holistically in real time. Sensory data (including vibration, pressure, temperature and energy) that support AI algorithms and intelligent mechatronics, play an important role in prognoses before faults occur, help to prevent production halt, and save valuable resources while guaranteeing optimal manufacturing performance. Successful implementation of Al-based mechatronics allows regular maintenance to be replaced by condition-based or predictive maintenance. In an effort to disseminate current AI advances for intelligent manufacturing,

a focused session in this area will be published in IEEE/ASME Transactions on Mechatronics (TMECH), which will provide a platform for scientists, engineers and industrial practitioners to present their latest theoretical and technological advancements in the design of advanced and/or emerging health monitoring and management, fault diagnosis and prognosis, practical implementation, and various case studies of the AI-based manufacturing applications of these techniques.

The topics of interest within the scope of this Focused Section include but not limited to:
• Modeling of complex mechanical systems especially with component fault/failure
• Data-science including data mining and data analytics
• Advanced signal processing and machine perception of mechanical systems
• Machine learning techniques for smart manufacturing
• Theoretical development in fault detection, isolation, and identification
• Advanced approaches for health monitoring and management
• Smart sensors, online monitoring and diagnosis in practical applications
• Machinery prognostic health management (PHM) including abnormal detection, health stage division, and remaining life prediction
• Transferable approaches for generalization on insufficient data
• Implementation practices of AI-monitoring for real world manufacturing processes for successful case study in detail

Manuscript preparation:

Papers must contain original contributions and be prepared in accordance with the journal standards. Instructions for authors are available online at:
http://www.ieee-asme-mechatronics.org/. Manuscripts should be submitted online at:
https://mc.manuscriptcentral.com/tmech-ieee.

The cover letter should report the following statement: "This paper is submitted for possible publication in the Focused Section on AI-based monitoring in smart manufacturing." All manuscripts will be subjected to the regular TMECH peer review process. Any questions relating to this focused section can be sent to one of the Guest Editors below via emails.

Important dates:

Paper Submission Dec. 1, 2019
Completion of First Review Mar. 1, 2020
Submission of Revised Papers Apr. 15, 2020
Completion of Final Review Jun. 1, 2020
Submission of Final Manuscripts and Copyright Forms Jul. 1, 2020
Publication Oct., 2020

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5   Conferences and Workshops

5.1. Allerton Conference on Communication, Control, and Computing, USA
       Contributed by: Peggy Wells, pwells@illinois.edu

57th Allerton Conference on Communication, Control, and Computing – September 24-27, 2019
Conference co-chairs: Daniel Liberzon and Alejandro Dominguez-Garcia
Submission Deadline: July 8, 2019.
Manuscripts can be submitted from June 15-July 8, 2019 with the submission deadline of July 8th being firm. Please follow the instructions at allerton.csl.illinois.edu.

Important Dates:

- July 8: Submission Deadline
- August 2: Acceptance Date Authors will be notified of acceptance via email by August 6, 2019, at which time they will also be sent detailed instructions for the preparation of their papers for the Conference Proceedings.
- After August 5: Registration Opens
- September 24-27: Conference Dates
- September 24: Opening Tutorial Lectures at the Coordinated Science Lab, University of Illinois at Urbana-Champaign: Christoforos Hadjicostis, University of Cyprus and Angelia Nedich, Arizona State University. September 25-27: Conference Sessions at the University of Illinois Allerton Park & Retreat Center. The Allerton House is located 26 miles southwest of the Urbana-Champaign campus of the University of Illinois in a wooded area on the Sangamon River. It is part of the 1,500 acre Robert Allerton Park, a complex of natural and man-made beauty designated as a National natural landmark. Allerton Park has 20 miles of well-maintained trails and a living gallery of formal gardens, studded with sculptures collected from around the world.
- September 26: Plenary Speaker: Benjamin Vay Roy, Professor at Stanford University
- September 29: Final Paper Deadline Final versions of papers that are presented at the conference must be submitted electronically in order to appear in the Conference Proceedings and IEEE Xplore.

5.2. Workshop on Principles for Control of Quantum Systems, Hong Kong
       Contributed by: Guofeng Zhang, Guofeng.Zhang@polyu.edu.hk

The 13th international workshop on Principles and Applications for Control of Quantum Systems (PRAC-QSYS 2019)

The development of technologies for the 21st century, coupled with fundamental scientific inquiry, is driving new theoretical and experimental research on control in quantum systems. Experience has shown that systematic use of quantum control theory leads to significant improvements in technologies ranging from magnetic resonance to prototype quantum computers. Compelling case studies of quantum control have been developed in wide-ranging fields such as chemistry, metrology, optical networking and computer science.
This is the 13th international workshop on Principles and Applications for Control of Quantum Systems.

The first workshop of that name was held at the California Institute of Technology in 2004. We retain its basic aim: to bring together researchers in physics, control theory, dynamical systems, stochastics, signal processing and information science to strengthen the community of quantum control.

As in previous workshops, all lectures will be from invited speakers and will present recent developments at the forefronts of theoretical research, experimentation and motivating applications.
The 2019 conference is taking place at The Hong Kong Polytechnic University, from Saturday, December 14, to Wednesday, December 18, 2019. Poster sessions will be held in the afternoon of the second, third and fourth days.

Please visit the following website:
https://sites.google.com/view/pracqsys2019/home

Local Organizing Committee
• Guofeng Zhang (Chair), The Hong Kong Polytechnic University, guofeng.zhang@polyu.edu.hk
• Renbao Liu, The Chinese University of Hong Kong, renbaoliu@gmail.com
• Haidong Yuan, The Chinese University of Hong Kong, haidong.yuan@gmail.com
• Nung-sing Raymond Sze, The Hong Kong Polytechnic University, raymond.sze@polyu.edu.hk

International Programme Committee
• John Gough, Aberystwyth University (jug@aber.ac.uk)
• Renbao Liu, The Chinese University of Hong Kong (renbaoliu@gmail.com)
• Hendra Nurdin, The University of New South Wales (h.nurdin@unsw.edu.au)
• Pierre Rouchon, MinesParis Tech (pierre.rouchon@mines-paristech.fr)
• Mohan Sarovar, Sandia National Laboratories (mnsarov@sandia.gov)
• Mankei Tsang, National University of Singapore (mankei@nus.edu.sg)
• Lorenza Viola, Dartmouth College (lorenza.viola@dartmouth.edu)
• Re-bing Wu, Tsinghua University (rbwu@tsinghua.edu.cn)

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

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

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

Main Topics:
- Advanced motion control in mechatronics

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

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

5.4. Conference on Control, Automation and Systems, South Korea
      Contributed by: Zee Yeon Lee, conference@icros.org

The 19th International Conference on Control, Automation and Systems (ICCAS 2019)
October 15 18, 2019 ICC Jeju, Korea
http://2019.iccas.org

Call for Papers:
http://icros.org/data/download/ICCAS2019/ICCAS2019_CFP.pdf

The aim of the ICCAS is to bring together researchers and engineers worldwide to present their latest works, and disseminate the state-of-the-art technologies related to control, automation, robotics, and systems.

Important Dates:

- June 30, 2019 : Submission of Regular Papers (3–6 pages)
- June 30, 2019 : Submission of Organized Session/Mini-symposium Proposal with Papers and Research Poster Papers (1–2 pages)
- July 31, 2019 : Notification of Acceptance
- August 31, 2019 : Submission of Final Camera-ready Papers

Paper Submission:

The conference invites three types of submission: "Regular Paper", "Research Poster Paper", and "Organized (Invited) Session/Mini-symposium Paper."
Indexed in: IEEE Xplore, EI compendex, and SCOPUS
Plenary Speakers:

- Frank Doyle (Harvard Univ., USA)
- Jun-Ichi Imura (Tokyo Institute of Technology, Japan)
- Eduardo F. Camacho (Univ. of Seville, Spain)
- Tianyou Chai (Northeastern Univ., China)
- Dawn Tilbury (Univ. of Michigan, USA)

ICCAS 2019 will be held on October 15 18, 2019 at ICC Jeju in Jeju, Korea. Jeju is a very beautiful and relaxing island, and selected as the World Natural Heritage. The aim of ICCAS 2019 is to bring together professors, researchers, engineers and students worldwide to present their recent works and discuss the state-of-the-art technologies related to control, automation, robotics and systems.

General Chair: Chung Choo Chung (Hanyang Univ., Korea)
General Co-Chair: Jay H. Lee (KAIST, Korea)
Program Chair: Dong Eui Chang (KAIST, Korea)

5.5. Conference on Intelligent Control and Information Processing, Morocco
Contributed by: Nian Zhang, nzhang@udc.edu

ICICIP2019: Tenth International Conference on Intelligent Control and Information Processing, Marrakesh, Morocco
https://conference.cs.cityu.edu.hk/icicip/

The Tenth International Conference on Intelligent Control and Information Processing (ICICIP 2019) will be held in Marrakesh, Morocco during December 14-19, 2019, following the successes of previous events. Located in northern Africa, Marrakesh is one of four ancient capitals of the kingdom and listed by UNESCO as a cultural heritage. ICICIP 2019 aims to provide a high-level international forum for scientists, engineers, and educators to present the state of the art of research and applications in related fields. The symposium will feature plenary speeches given by world renowned scholars, regular sessions with broad coverage, and special sessions focusing on popular topics.

Authors are invited to submit full-length papers by the submission deadline through the online submission system. The submission of a paper implies that the paper is original and has not been submitted under review or is not copyright-protected elsewhere and will be presented by an author if accepted. All submitted papers will be refereed by experts in the field based on the criteria of originality, significance, quality, and clarity. The Proceedings has been contracted to be included in IEEE Xplore Digital Library and submitted for EI indexing.

Important Dates

Paper submission deadline: July 1, 2019
Notification of acceptance: September 1, 2019
Camera-ready copy and author registration: October 1, 2019
Conference: December 14-19, 2019

5.6. Conference on Mechatronics, Robotics and Systems Engineering, Indonesia
Contributed by: Tua A. Tamba, ttamba@unpar.ac.id

2019 International Conference on Mechatronics, Robotics and Systems Engineering (MoRSE 2019)
Date/Location: 4-6 December 2019 / Bali - Indonesia
Technical Co-Sponsor: IEEE Indonesia Section CSS/RAS Joint Chapter
Website: https://morse.unpar.ac.id/

Submission is currently open at http://edas.info/N26473 (due: 30 August, 2019)

MoRSE conference 2019 is an international conference which covers recent advances and development in the areas of Mechatronics, Robotics and Systems Engineering. We invite students, researchers, scientists and engineers from research/educational institutions and industries to submit manuscripts related to the area of Mechatronics, Robotics, and Systems Engineering. Accepted and presented papers will be submitted for publication in IEEE Xplore Digital Library.

Plenary Speaker (to be updated regularly):
- Prof.Joris De Schutter (KU Leuven, Belgium)

Venue:

Bali, known worldwide as The Island of God, is one of the world's most popular island holiday destination. Located in the Indonesian archipelago, the island is well-known for its magnificent mountains, rugged coastlines, volcanic hillsides, black sandy beaches and exotic temples and palaces. The organizing committee is committed to give its best to provide rich program and ensure pleasant stay for the participants of MoRSE conference 2019. Detailed information about the conference are available on the conference web at https://morse.unpar.ac.id/.

We look forward to your participation and meet you in BALI!

6   Positions

6.1. PhD: University of New South Wales, Australia
Contributed by: Daoyi Dong, daoyidong@adfa.edu.au

Scientia PhD Scholarship at UNSW: Machine learning for quantum estimation and control

This project aims to develop effective estimation and control methods using machine learning for quantum systems. Benchmarking and controlling quantum systems have been an important task in next generation technology. However, efficient methods for the estimation and control of complex quantum systems are lacking. The project will advance key knowledge and provide effective methods to enable us to identify and control complex quantum systems for wide applications arising in this emerging technological revolution. The research outcomes will make an important contribution to accelerating practical applications of future quantum technology. The scholarship provides the following support:

- Work on high quality research projects with the best supervisory teams in world class environments
- $40K a year stipend for four years
- Tuition fees covered for the full 4 year period
- Coaching/mentoring will form a critical part of your highly personalised leadership development plan
- Up to $10k each year to build your career and support your international research collaborations

More application information could be found at:
https://www.scientia.unsw.edu.au/scientia-phd-scholarships/machine-learning-quantum-estimation-and-control

If you are interested in applying for the scholarship, please submit your application online, or contact A/Prof Daoyi Dong (d.dong@unsw.edu.au), Dr Hidehiro Yonezawa (h.yonezawa@unsw.edu.au) or Prof Valeri Ougrinovski (v.ougrinovski@adfa.edu.au) by 14 July 2019.

6.2. PhD: University of Groningen, The Netherlands
Contributed by: Dario Bauso, d.bauso@rug.nl

One PhD Position for interdisciplinary research in Systems and Control, Optimization, Game Theory and Complex Networks.

Optimization and Decision Systems Research Group (ODS), Engineering and Technology Institute (EN-TEG), Royal University Groningen (RUG), The Netherlands.

You should have a good first degree and/or Masters degree (or close to completion) in mathematics or engineering or related subject. In addition, you should also have a background in systems and control theory, optimization, operational research, or game theory as well as a familiarity with computing software (MAT-LAB or similar). An interest in interdisciplinary studies is also desirable. You should have good command of the English language (Dutch not required). Applications from enthusiastic, talented and outstanding candidates are welcome.

The successful candidate will join the new research group Optimization and Decision Systems and will carry out research in one of the following topics.

1. Evolutionary dynamics in social networks. In social networks one often observes herd behaviors or crowd-seeking attitudes in that certain social groups tend to mimic the behavior of other social groups. Behaviours may involve political opinions or social interactions like aggressive, non-aggressive or cooperative non-cooperative. Mimicry can also be observed in financial markets under the name of "stock market bubbles", which sees investors to emulate other investors. You will deal with convergence analysis of consensus network dynamics under the influence of external manipulators. You will develop multi-scale dynamic models combining complex networks game theory and control theory.

2. Collective decision making for logistics and intelligent mobility. In "future cities" end use customers use electric plug-in vehicles to go from a source node to a destination node, and choose routing policies and charging policies (where and when to buy-sell energy to/from the power network). You will deal with the analysis and design of market mechanisms, incentive schemes, business models to induce socially optimal behaviors of end-use customers. You will develop micro-macro models capturing the interactions between individuals, groups and the environment. You will use mean-field game theoretic models to describe how individuals respond to a population behavior and how the population behavior evolves if individuals are rational decision-makers.

3. Any other topic within the range of Bauso's expertise.

You will be exposed to interdisciplinary approaches which will help you

1. develop novel ideas and creative thinking and get perspective from outside your group

2. learn more about yourself, what you do and do not like in knowledge and science, and who you engage with most positively

3. improve your confidence and communication skills when talking to an heterogeneous audience

The position will start as soon as possible, and run for four years. The successful candidate will be enrolled in the University graduate school. PhD students will receive a competitive salary in accordance with the Collective Labour Agreement for Dutch Universities (CAO). For more details go to

https://www.rug.nl/education/phd-programmes/phd-scholarship-programme/conditions-application/

RUG is a top 100 research university currently ranked 80th on the Times Higher Education ranking. Founded in 1614, the university is one of the oldest research universities in the Netherlands. RUG is a truly international university, with over 30,000 students and 6,000 international students from over 120 different nationalities. According to the Shanghai Academic Ranking of World Universities (ARWU) 2018, Automation and Control Engineering at RUG is number one in the Netherlands, 5th in Europe and 18th worldwide.

Please send your application including a motivation letter, a curriculum vitae, a list of courses with grades, and contact information for two academic references to Prof Dario Bauso (d.bauso@rug.nl) with (a.fronczek@rug.nl in cc). The position will remain open until an ideal candidate is found. However, for full consideration please apply before July 30, 2019.

Please specify the following text in the subject: ODS - PhD application

6.3. PhD: IFP Energies, France

Contributed by: Hoai Nam Nguyen, hoai-nam.nguyen@ifp.fr

PhD position in Machine Learning, Wind Energy, Automatic Control

Design of Real-time Estimation Algorithms for Fault Detection and Load Mitigation Control at the Wind Farms Scale

In the field of wind energy, operators are now focusing on using existing wind farms more efficiently, reducing farm-level mechanical stress and reducing maintenance costs through improved fault detection. In this context, our central question will be "How to design an algorithm capable of optimally and robustly estimate the wake and the wind field properties in real-time at the wind farm scale?" These estimations will make it possible to design improved fault detection algorithms, as well as farm-level load distribution controls. Classical centralized estimation approaches are unfortunately unable to address such a question due to the inaccuracy in the estimations and the high computational burden. To address our problem, we will rely on the theoretical tools of machine learning and advanced estimation methods. The machine learning paradigm makes it possible to adapt itself to create an increasingly robust and reliable model of the studied phenomena based on observations. The interest is to learn information from the uncertain and fluctuating environment. In particular, the Gaussian process approach shows good potential in terms of performance and ability to learn from a large amount of data. This research work will greatly support the developments of the next generation of the IFPEN industrial solutions for wind estimation.

Academic supervisor: Prof. Nicolas PETIT, CAS, MINES ParisTech Doctoral School ED432 - Sciences des Métiers de l'Ingénieur IFPEN supervisor Dr. Olivier LEPREUX, Research engineer, Control, Signal, Systems Dpt. PhD location IFP Energies nouvelles, Lyon, France
Duration and start date: 3 years, starting preferably on October 1, 2019
Academic requirements: University Master degree in mathematics, automatic control or signal proc.
Language requirements: Fluency in English
Gross annual salary: €26940–30960. Additional company benefits.

For more information or to submit an application contact the IFPEN supervisor at recruit.postdoc@ifpen.fr About IFP Energies nouvelles: IFP Energies nouvelles is a French public-sector research, innovation and training center. Its mission is to develop efficient, economical, clean and sustainable technologies in the fields of energy, transport and the environment. For more information, see www.ifpen.fr.

6.4. PhD: University of Groningen, The Netherlands

Contributed by: Ashish Cherukuri, a.k.cherukuri@rug.nl

We are looking for a candidate to join the Ph.D. program in our new research group of Optimization and Decision Systems in Engineering and Technology Institute Groningen (ENTEG), University of Groningen (RUG). The candidate must have a Masters degree (close to completion) in engineering, computer science, operations research, or applied mathematics. Strong mathematical background in the area of optimization and control is expected. The candidate should have good command over the English language (Dutch not required).

The topic will broadly fall in the areas of optimization, control, and game theory, as suited for networked cyber-physical systems, primarily, power and transportation networks. Special emphasis will be on data-driven methods.

Ph.D. students will receive a competitive salary in accordance with the Collective Labour Agreement for Dutch Universities (CAO). Interested candidates are invited to send a complete application to Ashish Cherukuri, email: a.k.cherukuri@rug.nl, including the following items in a single PDF file:

1. A curriculum vitae (name, address, degree(s) with transcript(s) of grades, research experience, educational and employment history, etc.)
2. A statement of motivation/purpose, listing down relevant research experience (preferably less than 1 page)
3. Grade transcripts of obtained degrees/diplomas (in English)
4. Names and contact information of two academic references
5. (Optional) An example of research writing which can include Master thesis or equivalent project report or a submitted/accepted publication

Please use the subject of the email as "ODS-PhD-application". For full consideration, apply by 31st of July 2019.
For more information regarding the position please contact:
Dr. Ashish Cherukuri
Email: a.k.cherukuri@rug.nl

About RUG and ENTEG. RUG is a top 100 research university currently ranked 80th on the Times Higher Education ranking. Founded in 1614, the university is one of the oldest research universities in the Netherlands. RUG is a truly international university, with over 30,000 students and 6,000 international students from over 120 different nationalities. According to the Shanghai Academic Ranking of World Universities (ARWU) 2018, Automation and Control Engineering at RUG is number one in the Netherlands, 5th in Europe and 18th worldwide.

6.5. PhD: Technical University of Crete, Greece
Contributed by: Markos Papageorgiou, markos@dssl.tuc.gr

Four PhD candidate positions: The research proposal TrafficFluid (Lane-free Artificial-Fluid Environment for Vehicular Traffic) has been recently selected by the European Research Council (ERC) to receive funding through an ERC Advanced Grant. The principal investigator of TrafficFluid is Prof Markos Papageorgiou, Technical University of Crete, Chania, Greece. This is an announcement for 2 post-doc research position and 4 PhD candidate positions. Successful applicants will be hired from the 1st of October 2019, the earliest, and for a period of up to 4 years for PhD candidates and up to 5 years for post-docs. Applications can be emailed to: markos@dssl.tuc.gr.

Details can be found at: https://www.dropbox.com/s/lkhvggglbleaqj7/ERC_vacancies.pdf?dl=0

6.6. PhD: Chalmers University, Sweden
Contributed by: Balazs Kulcsar, kulcsar@chalmers.se

PhD student position in Altruistic 5G Traffic Coordination

Chalmers University of Technology is located in Gothenburg on the scenic west coast of Sweden. The research environment is international and English is the working language. The project below is a joint work between two Divisions within the Department of Electrical Engineering. The Division on Communication Systems is focused on theory and algorithms for digital communication systems, ranging from fundamental to application-driven research including disciplinary and multidisciplinary projects. The Automatic Control Group focuses on applications in the transportation and energy sectors contribution to the theoretical fields in robust and optimal control.

Information about the research:
We are moving towards a society with a mix of legacy human-driven vehicles (HDV) and connected automated vehicles (CAVs). While we are still far away from fully automated intersections and large-scale platooning with private vehicles, more immediate opportunities exist exploiting the availability of a small fraction of CAVs. It is our vision that a small fraction of CAVs can significantly improve throughput, energy efficiency, and safety of large transportation networks. More specifically, if the CAVs are connected via ultra-fast 5G wireless links, they can act as actuators on shaping urban traffic system. This allows for more refined traffic control in conjunction with traffic lights, variable speed signs, and route guidance. Secondly, CAVs can upload their sensory data to a cloud via high-throughput 5G connectivity and provide fine-grained traffic information related to congestion, accidents, and road conditions. The main methodological questions behind this project are: how to collect and disseminate information and how to coordinate CAV actions over a 5G network.

Major responsibilities:
You will participate in an interdisciplinary research project, combining control, signal processing, and communication to develop novel coordination algorithms for CAVs. This research project is part of the Wallenberg Autonomous Systems Program (WASP) and involves a set of mandatory courses as well as short-term travel to course locations and other sites in Sweden and abroad. The appointment offers great opportunities to qualify for further research positions within academia or industry as we have numerous ongoing collaborations with the leading groups internationally.

Position summary:
The position as a PhD student is a full-time temporary employment (not scholarship), limited to a maximum of four years, plus teaching and other departmental duties. A monthly salary is paid. There are no tuition fees for PhD studies at Chalmers.

Qualifications:
The applicant should have a Master's degree in Electrical Engineering, Engineering Physics, Applied Mathematics, Computer Science, Control, Communication or similar. Excellent presentation skills, and fluency in English are required. High grades in the core courses are required (we generally only accept top 10% of students). Skills in mathematical analysis are essential, particular statistical signal processing, control theory, optimization theory. Interest or experience with reinforcement learning or random finite set theory,

as well as previous experiences in research, publications, and teaching are advantageous.

Application deadline July 31st 2019 under the reference number 20190333 via https://bit.ly/2IrMClG

6.7. PhD: Paderborn University, Germany
Contributed by: Moritz Schulze Darup, moritz.schulzedarup@rub.de

Two PhDs: Paderborn University, Germany
In the faculty of Electrical Engineering, Computer Science and Mathematics at Paderborn University, the Encrypted Control Junior Research Group within the Automatic Control Group is looking for 2 Research Assistants (pay scale 13 TV-L).

Both positions are to be filled as soon as possible. Each position is a full-time position to support a PhD-project in the field of encrypted control. The initial contract is for three years.

The freshly established Encrypted Control Junior Research Group is funded by the Emmy Noether Program of the German Research Foundation (DFG). The group develops secure control schemes for networked control systems such as smart grids, intelligent transportation systems, or robot swarms. The emphasis lies on encrypted controllers that are capable of computing encrypted control actions based on encrypted system information without intermediate decryptions. To design this novel and promising type of networked controllers, methods from control and optimization are combined with cryptographic tools such as homomorphic encryption, secret sharing and multi-party computation. The multidisciplinary approach is currently unique in Germany and internationally at the forefront of research.

Encrypted control is a young but emerging field of research. Current realizations can be seen as proofs of concept based on various simplifications. The offered positions focus on the systematic design of future encrypted control schemes that are more practical, more flexible, and more efficient than state-of-the-art approaches. Achieving this goal requires clever formulations of the underlying control problems, realistic specifications of threat models, and sophisticated methods from cryptography. The two candidates will work collaboratively on the project with an individual emphasis on control respectively encryption.

We expect the prospective candidates to conduct innovative research on the specified topic, aiming at publications on leading international journals and conferences. We further expect the candidates to support our teaching activities by 2 - 4 hours per week. In exchange, we offer a creative, inspiring, and international research environment, highly relevant projects, and professional support.

Your profile at a glance:

Master's degree in electrical engineering, applied mathematics, computer science, or a comparable subject with good grades from a top university
Strong background in either optimization-based control, numerical optimization, or cryptography (especially homomorphic encryption or multi-party computation)
Good programming skills (especially Matlab, Python, C, or VHDL)
Good English skills (German is appreciated but not necessarily required)

Publications at reputable venues from the mentioned fields are a plus

Please send your application, including a cover letter, your CV, scanned certificates, a list of publications (if applicable), and the contact data of two references, by e-mail with a single attachment to moritz.schulze.darup@upb.de until August 15th 2019 mentioning the reference number 3860. Informal inquiries should also be directed to the above e-mail address.

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6.8. PhD: Eindhoven University of Technology, The Netherlands
Contributed by: Roland Toth, r.toth@tue.nl

PhD position in Data-Driven Learning of Linear Parameter-Varying Models

The Control System Group at the Eindhoven University of Technology is inviting applications for a PhD position in Data-Driven Learning of Linear Parameter-Varying Models.

This PhD project aims to surmount the challenges of the current LPV system identification methods by establishing an innovative synergy between the Machine Learning (ML) and the LPV framework. The aim is to develop computationally efficient model learning approaches capable of supporting control synthesis. The emerging ML framework provides powerful data-driven approaches to facilitate non-parametric learning of complicated data-relations. The flexibility of the ML framework in defining learning objectives (aim-relevant estimation) and its ability to facilitate optimal recovery of structural relationships (model structure selection) provide novel perspectives in terms of developing dedicated methods to solve the limiting problems of the current identification LPV theory.

For more details see: https://bit.ly/2NoOikC

The position is funded for four years. Candidates need to have a MS degree in Control Systems, Electrical Engineering, Applied Mathematics or related disciplines. Applicants will continuously reviewed until the position is filled. For information contact: dr. Roland Toth (r.toth@tue.nl).

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6.9. PhD/Postdoc: Maynooth University, Ireland
Contributed by: John Ringwood, john.ringwood@mu.ie

PhD and Postdoc positions in wave energy control

The Centre for Ocean Energy Research (COER) at Maynooth University, Ireland currently has openings at both PhD and postdoc level for well-qualified candidates. 3 funded (stipend + fees) PhD positions are available, in math modelling and control of wave energy devices. Two of these projects are in partnership with industry and will involve some level of secondment.

The postdoc positions are in the area of control of wave energy devices, with an emphasis on real-time implementation, involving the application of a range of control paradigms to a small variety of wave energy prototype devices, in wave tank testing conditions. Further information from Prof. John Ringwood

(john.ringwood@mu.ie) and http://www.eeng.nuim.ie/coer/.

PhD candidates should have strong background in mechanical/elec/control engineering, while candidates for the posdoc positions should have some experience of real-time control systems.

6.10. Postdoc: Lund University, Sweden
Contributed by: Anders Rantzer, rantzer@control.lth.se

Two postdoc positions at Lund University. Apply by June 9.

The department of Automatic Control at Lund University is announcing PhD and postdoc positions funded by an Advanced Grant from the European Research Council. The project is devoted to theory for large scale systems, adaptive control and applications in district heating networks. See http://www.lth.se/english/work.

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

Postdoc in hybrid control of multi-robot systems at KTH. A postdoc position in hybrid control of multi-robot systems is available at KTH. The full description can be found here:
https://www.kth.se/en/om/work-at-kth/lediga-jobb/what:job/jobID:274711/where:4/
Please contact Prof. Dimos Dimarogonas at dimos@kth.se for further information.

6.12. Postdoc: Technical University of Crete, Greece
Contributed by: Markos Papageorgiou, markos@dssl.tuc.gr

Two post-doc research positions

The research proposal TrafficFluid (Lane-free Artificial-Fluid Environment for Vehicular Traffic) has been recently selected by the European Research Council (ERC) to receive funding through an ERC Advanced Grant. The principal investigator of TrafficFluid is Prof Markos Papageorgiou, Technical University of Crete, Chania, Greece. This is an announcement for 2 post-doc research position and 4 PhD candidate positions. Successful applicants will be hired from the 1st of October 2019, the earliest, and for a period of up to 4 years for PhD candidates and up to 5 years for post-docs. Applications can be emailed to: markos@dssl.tuc.gr.

Details can be found at:
https://www.dropbox.com/s/lkhvggglbleaqj7/ERC_vacancies.pdf?dl=0

6.13. Postdoc: Georgetown University, USA
Contributed by: Nitin Vaidya, nitin.vaidya@georgetown.edu

Applications are invited for a post-doc position in Prof. Nitin Vaidya's group at Georgetown University in Washington DC.

Research topics of interest include:
1. Distributed optimization
2. Distributed machine learning
3. Fault-tolerant algorithms for optimization and learning

To apply, send a vitae in PDF to Nitin Vaidya at Nitin.Vaidya@georgetown.edu
Information about Vaidya's research group is available from disc.georgetown.domains

6.14. Postdoc: KTH, Sweden
Contributed by: Karl H. Johansson, kallej@kth.se

Two-four Postdocs in Networked Control Systems

We are currently looking for 2-4 postdocs in networked control systems. The successful candidate will join a project on developing novel mathematical and computational tools for the fundamental understanding and engineering design of emerging networked control systems, with a particular focus on resilient and secure cyber-physical systems or intelligent transportation systems.

Applicants must hold or be about to receive a doctoral degree in Electrical Engineering, Automatic Control, Applied Mathematics, Computer Science, or a similar field. The doctoral degree must have been obtained within the last three years from the application deadline (exceptions for special grounds include parental leave). The candidates should have a strong background in systems and control theory, optimization, or cyber-physical systems. The successful applicants should have a good research and publication record as well as well-developed analytical and problem solving skills. We are looking for a strongly motivated individuals, who are able to work both independently and in teams. Good command of English orally and in writing is required.

Details, including how to apply, can be found at
https://www.kth.se/en/om/work-at-kth/lediga-jobb/what:job/jobID:275623/

6.15. Postdoc: Eindhoven University of Technology, The Netherlands
Contributed by: Roland Toth, r.toth@tue.nl

Postdoc in LPV Model Reduction and Frequency Domain Analysis

The Control System Group at the Eindhoven University of Technology is inviting applications for a Postdoc position in LPV Model Reduction and Frequency Domain Analysis.

Postdoc position focuses on model reduction approaches to be developed both in the time and frequency domain that aim at complexity reduction of converted LPV first-principle models by balancing the trade-off between complexity and accuracy in terms of the control/user objectives. The long-term focus is on

developing a novel theoretical LPV framework where modelling and control synthesis is seen as a unified process with a major emphasis on the achieved controlled (i.e., in case of feedback control, the closed-loop) NL/TV behaviour, i.e., a Direct Controlled System Synthesis (DCSS), where achieved performance bottlenecks of control synthesis are used to re-fine and re-adjust the system model.

For more details see: https://bit.ly/2LqbVX8

The position is funded for 3 years. Candidates need to have a PhD degree in Control Engineering. Applicants will be continuously reviewed until the position is filled. For information, contact: dr. Roland Toth (r.toth@tue.nl).

6.16. Postdoc: University of California Irvine, USA
Contributed by: Solmaz Kia, solmaz@uci.edu

Postdoctoral Position in Cooperative Systems Lab
Mechanical and Aerospace Engineering Dept., University of California Irvine

Applications are being accepted for a postdoctoral position in control of multi-agent systems, such as robot swarms. The ideal candidate would have excellent oral and written communication skills and a PhD in engineering, with a strong background in control of multi-agent systems in areas such as graph theory, motion planning, distributed optimization and robotics. The research will be supervised by Prof. Solmaz Kia the PI of the Cooperative Systems Lab.

The expected duration of the position is one year, with other durations possible. The position is available immediately. To apply, email a single pdf file containing a brief cover letter describing your professional interests and future goals, a CV, and contact information for three references to Prof. Kia, solmaz@uci.edu.

The University of California, Irvine is an Equal Opportunity/Affirmative Action Employer advancing inclusive excellence. All qualified applicants will receive consideration for employment without regard to race, color, religion, sex, sexual orientation, gender identity, national origin, disability, age, protected veteran status, or other protected categories covered by the UC nondiscrimination policy.

6.17. Postdoc: University of New South Wales, Australia
Contributed by: Daoyi Dong, daoyidong@adfa.edu.au

Quantum estimation postdoc at UNSW Australia

A 2.5 years postdoc on quantum estimation is available at UNSW, Australia. The following is a summary of this position. For more information, please see
https://www.unsw.adfa.edu.au/career/academic-job-opportunities

Summary: Join an established team in the Quantum Control Research Group. Conduct research in novel quantum Estimation algorithms then publish your findings. UNSW Canberra is a campus of the University of New South Wales located at the Australian Defence Force Academy in Canberra. UNSW Canberra

endeavours to offer staff a rewarding experience and offers many opportunities and attractive benefits, including:
- One of Australia's leading research and teaching universities
- Australian bush land setting with FREE parking
- FREE Onsite GYM, pool and Indoor Sports Centre
- A strong commitment to staff development and learning
- A strong commitment to work life and family balance
- Generous superannuation and salary packaging opportunities
- Location: Canberra, Australia

At UNSW, we pride ourselves on being a workplace where the best people come to do their best work.

This role will be situated within the School of Engineering and Information Technology (SEIT). The engineering disciplines have close research collaborations promoting multidisciplinary research opportunities. Over recent years SEIT has produced more than 400 high impact research publications each year and continues to perform exceptionally in terms of research outputs and grant funding obtained through competitive funding opportunities as offered by the Australian Research Council, Industry partners and Defence, in addition to generous internal support provided by UNSW Canberra.

About the role:
- Research Associate Level A: $95,449$ to $102,091$ pa (+17% super and leave loading)
- Fixed term – 30 months starting ASAP
- Full-time

UNSW Canberra has an exciting opportunity for a Research Associate in Quantum Estimation. The Research Associate Position is a key role within the research team working on quantum estimation project supported by the ARC Centre of Excellence for Quantum Computation and Communication Technology and the Australian Research Council (ARC) Discovery Project (DP) "Efficient and high-precision system identification in quantum cybernetics". The Research Associate will conduct research into the development of novel algorithms and approaches for quantum estimation theoretically and experimentally.

About the successful applicant: To be successful in this role you will need to have:
- A PhD (or PhD thesis submission by 1 May 2019) in Quantum Physics, Electrical Engineering or an area related to quantum information, control and system identification.
- Demonstrated ability to conduct research in Quantum Estimation with limited supervision.
- A demonstrated track record of publications and conference presentations relative to opportunity.

6.18. Postdoc: Linkoping University, Sweden
Contributed by: Anders Hansson, anders.g.hansson@liu.se

The optimization group within the Division of Automatic Control at the Department of Electrical Engineering at Linkoping University, Sweden, is seeking a post-doctoral fellow that would like to be engaged in cutting edge interdisciplinary control research involving optimization and learning with applications to autonomous systems. The research activity will focus on development of autonomous optimization, i.e.

to learn optimal optimization algorithms for optimization problems relevant to autonomous systems. This work will be carried out in collaboration with The Royal Institute of Technology in Stockholm. The project is an Expedition Project funded by WASP, http://wasp-sweden.org/ There are no teaching duties involved.

Qualifications: A Ph.D. degree (or close to completion) in Systems and Control, Applied Mathematics, or related field is required. Ideal candidates must have a strong background in Systems Theory, Automatic Control, Optimization and Statistical Learning. Excellent interpersonal, written, and oral communication skills and ability to write peer reviewed papers with limited supervision are important. The candidate must have the ability to collaborate with a multidisciplinary team of scientists and industry. Experience of developing efficient computer code is required.

The position requires a doctorate or an equivalent degree from a foreign university. The doctorate shall have been obtained no longer than three years before the expiration date of the application.

Appointment time: A Postdoc is appointed until further notice, but for no longer than two years. The appointment can be renewed if there are special reasons.

Questions: Are answered by Prof. Anders Hansson, E-mail: anders.g.hansson@liu.se.

Applications: Can only be done online at (Ref LiU-2019-02330)
https://liu.se/en/work-at-liu/vacancies

Last day of application is September 15. No applications after this date will be considered.

6.19. Postdoc/Faculty: Lund University, Sweden
Contributed by: Anders Rantzer, rantzer@control.lth.se

The department of Automatic Control at Lund University is announcing faculty and postdoc positions in control large-scale systems. The faculty position will soon appear on http://www.lth.se/english/work.

An associated start-up package covers two PhD students and two postdocs funded by the Knut and Alice Wallenbergs Foundation https://kaw.wallenberg.org/en.

6.20. Faculty: Eindhoven University of Technology, The Netherlands
Contributed by: Maurice Heemels, m.heemels@tue.nl

Faculty Position at Eindhoven University of Technology (TU/e)

The Control Systems Technology (CST) group of the Department of Mechanical Engineering of the TU/e seeks to hire an outstanding Assistant or Associate Professor within the field of "System identification and process control for multi-physics systems with applications in nuclear fusion and future fuels."

Emerging applications in the generation of energy through nuclear fusion as well as green energy through renewable (solar) fuels lead to multi-disciplinary control problems that are far more complex than ever

before. Related problems are arising in industry, including thermal and thermal-mechanical systems in lithography and printing systems, but also in medical applications such as hyperthermia to enhance the efficiency of cancer treatments. Breakthroughs in modelling, identification, and control technologies are essential to enable accurate operation of such processes, where the multi-physics character (thermal, mechanical, electromagnetic, chemical, biological) and multi-scale (both in space and time) nature of the underlying processes have to be explicitly accounted for. Techniques integrating (multi-)physics white-box modelling and data-based system identification and machine learning are needed to obtain models to design estimation and (feedback and feedforward) control algorithms enhancing the overall safety (adhering to constraints) and performance of the engineered systems of the future.

The new faculty member should play a leading role in addressing these modelling, estimation and control challenges in general and applying them in plasma control, nuclear fusion (tokamaks), future fuels and thermal systems. The successful candidate should hold a PhD degree in mechanical engineering, electrical engineering, systems and control, (applied) mathematics, computer science or physics. Core disciplines that are envisioned to be needed are:
• Systems and control
• Data-driven modelling (system identification and/or machine learning) and first principles modelling of multi-physics dynamical systems
• Partial differential equations and their control
• Model predictive control (MPC)
• Distributed and decentralized control
and it is expected to have
• Knowledge or strong interest in relevant application domains, for instance, in nuclear fusion, renewable (solar) fuels, etc.

Candidates are expected to be experienced in at least one of the core disciplines mentioned above. She/He should have the ambition to contribute to the creation of a strong, internationally renowned research group, while fostering a collaborative network with other academics working on the topic within the department, the university and industry. Strong ties with DIFFER (Dutch Institute for Fundamental Energy Research) will be established (see https://www.differ.nl). More information regarding the positions (vacancy number V35.3994) can be found at
https://jobs.tue.nl/nl/vacature/asst-professor-system-identification-process-control-for-multiphysics-systems-655813.html

or contact

- prof. dr. ir. Maurice Heemels (email: m.heemels@tue.nl)
- dr. ir. Tom Oomen (email: t.a.e.oomen@tue.nl)
or through the HR/recruitment department
- Twan Janssen (email: a.p.c.j.janssen@tue.nl)

How to apply:

If you are interested in this position and would like to apply, go to

https://jobs.tue.nl/nl/vacature/asst-professor-system-identification-process-control-for-multiphysics-systems-655813.html,

where you can find further details. You can upload your written application consisting of a letter of motivation, a statement of present and future research plans, a statement of teaching experience and interest, and detailed curriculum vitae including photograph and publications list, through the "apply now" button on the vacancy page. Recommendation letters are highly appreciated.

6.21. Faculty: University of California, Merced, USA
Contributed by: YangQuan Chen, ychen53@ucmerced.edu

Two assistant professor positions at University of California, Merced

The Department of Mechanical Engineering at the University of California, Merced invites applications for a full-time tenure-track faculty position at the Assistant Professor level. A Ph.D. degree in Mechanical Engineering or a closely related field at the time of appointment is required. Exceptional candidates in all areas of mechanical engineering will be considered, with preference given to those with expertise in: ground and aerial robotics and intelligent physical systems for industrial and agricultural applications, surface science and technology, or renewable energies. The successful applicant will conduct independent research, advise undergraduate and graduate students, and collaborate with other UC Merced faculty and research staff. Post-doctoral or other post-graduate experience is desirable but not required. We are particularly interested in attracting academically and culturally diverse candidates, especially those who can contribute to the growing diversity and excellence of the community through teaching, scholarship, and service.

Deadline: Positions are open until filled; consideration of applications will begin on October 16, 2019.

Online submission link with more information: https://aprecruit.ucmerced.edu/JPF00822

6.22. Research Associate and Postdoc: University of New South Wales, Australia
Contributed by: Daoyi Dong, daoyidong@adfa.edu.au

Research Associate in Quantum System Identification
https://bit.ly/320GnNv
Apply now Job no: 496897
Work type: Fixed term / Full time
Location: Canberra, ACT
Categories: Post doctoral research fellow

About the role
• Research Associate Level A: $95,449 to $102,091 pa (+17% super and leave loading)
• Fixed term – 24 months starting ASAP
• Full-time

UNSW Canberra has an exciting opportunity for a Research Associate in Quantum System Identification. You will be a key member of the research team on the Australian Research Council Discovery Project "Efficient and high-precision system identification in quantum cybernetics". Your research will focus on the development of novel efficient algorithms and approaches for high-precision quantum system identification. You will also have an opportunity to undertake teaching and supervise students research.

With the support of senior academics and the research team you will develop your research to be published in peer reviewed journals. You will also be required to travel to attend meetings related to your research both nationally and internationally as well as present your research findings at national and/or international conferences when required.

About the successful applicant

To be successful in this role you will need to have:
• A PhD (or PhD thesis submission by 1 May 2019) in Electrical Engineering or an are related to quantum information, control and system identification.
• Demonstrated ability to conduct research in Quantum System Identification with limited supervision.
• A demonstrated track record of publications and conference presentations relative to opportunity.

How to apply: If you want to continue your research in novel efficient algorithms in a collaborative and supportive environment please submit your CV, cover letter and responses to the selection criteria.

Contact:
Eugene Aves, Talent Acquisition Consultant
E: eugene.aves@unsw.edu.au
T: (+61 2) 9385 3475

Associate Professor Daoyi Dong
E: d.dong@adfa.edu.au
T: +61 2 6268 6285

6.23. Research Fellow: Curtin University, Australia
Contributed by: Cheyenne McMullan, curtincareers@curtin.edu.au

Research Associate/Research Fellow - Optimal Control
Job No: CURTIN651
Location: Perth
3 years fixed-term, full time
$88,135–$118,115 (ALA/ALB) and 17% superannuation

Curtin University is ranked in the top 1% of universities worldwide (ARWU 2018 and QS World University Rankings 2019), and is placed 20th in the world for universities less than 50 years old (QS Top 50 Under 50 2019). Curtin is WA's most preferred university, with highly engaged industry-facing partners. A major global player, with well-integrated campuses in Singapore, Malaysia, Mauritius and Dubai. A unique opportunity exists for a postdoctoral researcher to work on a project funded by the Australian Research

Council titled "Real-time global optimisation for distributed parameter control systems." The purpose of the project is to develop a new optimal control framework, underpinned by recent advances in constraint propagation, switching surface optimisation, and input regularisation, leading to cutting-edge control algorithms for replacing the inefficient manual operations endemic in Australia's natural gas and mineral processing plants.

The role will involve utilising your analytical skills in mathematical modelling and algorithm development to provide new insights into new and existing research and industry projects assisting with student supervision utilising your in-depth knowledge to enable and deliver new scientific discoveries, leading to international publications and practical impact you will be widely respected for your collaborative qualities You will work in a team led by Chief Investigators Professor Ryan Loxton, Associate Professor Lorenzo Ntogramatzidis and Dr Qun Lin in the School of Electrical Engineering, Computing, and Mathematical Sciences (EECMS) based at Curtin's Bentley Campus, Perth, Western Australia. The position will provide opportunities to engage with collaborators and industry partners, both locally and internationally, and developing proposals for further funding. This is an exciting opportunity to join a young, dynamic research team with a passion for translating new mathematical results into real-world outcomes.

You will bring to this role:
A PhD or satisfactory progression towards a doctoral qualification in control theory or relevant discipline
Demonstrated ability to conduct innovative research
Ability to work with a broad range of people from varying research backgrounds and evidence of strong oral and written communication skills
Demonstrated commitment to publish scientific research in high-quality international journals
Demonstrated ability to work independently under minimal supervision while contributing to overall team performance and proven ability to meet performance deadlines during the course of the project
Inter-disciplinary research expertise and/or industry experience will be advantageous

What we need from you:
You are encouraged to respond specifically to the selection criteria which can be found in the Academic Role Statement. To view the role's Position Descriptions, visit
https://applynow.net.au/jobs/ni/CURTIN651

Applications Close: 5:00 PM (AWST) Friday, 19 July 2019

How to Apply: to be considered for this role, please apply via https://applynow.net.au/jobs/ni/CURTIN651

Contact Details
To apply complete the application form below, or for more information contact:
Professor Ryan Loxton, EECMS
Phone: +61 8 9266 9218
Email: r.loxton@ curtin.edu.au
Please only apply via the attached link. Please do not send your resume direct to the above contact.