E-Letter on Systems, Control, & Signal Processing
Issue 387, November 2020

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Welcome to Issue 387 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 December 2020.

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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

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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:

- 2020 IEEE 17th India Council International Conference (INDICON 2020). New Delhi, India. December 11-13, 2020. http://www.indicon2020.in/

- 29th Mediterranean Conference on Control and Automation (MED 2021). Brindisi, Italy. June 22-25, 2021. http://www.med2021.poliba.it/

- 25th International Conference on Methods and Models in Automation and Robotics (MMAR 2020). Miedzyzdroje, Poland. August 23-26, 2021. http://www.mmar.edu.pl

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

IEEE Transactions on Automatic Control
Volume 65 (2020), Issue 10 (October)

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1.6. IEEE Transactions on Control Systems Technology
Contributed by: Michelle Colasanti, ieeetcst@osu.edu

IEEE Transactions on Control Systems Technology
Volume 28 (2020), Issue 6 (November)

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- Cautious Model Predictive Control Using Gaussian Process Regression, L. Hewing, J. Kabzan, and M. N. Zeilinger, page 2736
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1.7. Deadline Extension: TCNS Special Issue on Dynamics in Social Networks
Contributed by: Alex Olshevsky, alexols@bu.edu

Deadline Extension: Special Issue of TCNS on Dynamics and Behaviors in Social Networks

The aim of this special issue is to consolidate this trend, by giving a broad overview of the state of the art of the field, gathering together various samples of on-going research in the field, and presenting relevant research opportunities on dynamics and behaviors in social networks in which the control community could play a key role. In particular, we would like to also invite contributions by joint teams (e.g., from control systems and social sciences or economics) describing in control terms some challenges faced by the social scientists in their understanding of the opinion dynamics phenomena, or recent unexplained observations. We expect to receive papers dealing with concepts such as dynamical modeling, stability, robustness, influence of network topology on the dynamics, but also parametric identification, and perhaps even the use of feedback.

The Special Issue is focused mostly on papers with methodological contribution, but interdisciplinary papers containing also experimental research will also be considered.

- Submissions open: June 15, 2020
- Submissions deadline: November 30, 2020 (Deadline Extension)
- Completion of first round review: January 2021
- Acceptance: June 2021
- Final submission due: August 2021
- Tentative publication date: September 2021

Information on the submission process and manuscript format can be found at:
https://cemse.kaust.edu.sa/tcns/information-authors

Guest Editors
• Claudio Altafini, Department of Electrical Engineering Linkoping University, SE-58183 Linkoping, Sweden; claudio.altafini@liu.se
• Giacomo Como, Department of Mathematical Sciences Politecnico Di Torino, Torino, Italy; giacomo.como@polito.it
• Julien M. Hendrickx, Department of Mathematical Engineering, ICTEAM Institute, UCLouvain, Louvain-la-Neuve, Belgium; julien.hendrickx@uclouvain.be
• Alex Olshevsky, Department of Electrical and Computer Engineering Boston University, Boston, MA, USA; alexols@bu.edu
• Alireza Tahbaz-Salehi, Kellogg School of Management Northwestern University, Evanston, IL, USA; alirezat@kellogg.northwestern.edu

1.8. CDC 2020 Online Program
Contributed by: Hideaki Ishii, ishii@c.titech.ac.jp

IEEE Conference on Decision and Control, Republic of Korea
59th IEEE Conference on Decision and Control, December 14-18, 2020 Jeju Island, Republic of Korea
http://cdc2020.ieeecss.org
Join us at the first virtual CDC!

The online program can be found at
https://css.paperplaza.net/conferences/conferences/CDC20/program/.

The virtual program will be held over 5 days, with 4.5 hours per day, scheduled to start at 13:00 (1:00 pm) Coordinated Universal Time (UTC), which is one week later than was originally planned. The virtual sessions schedule will comprise 17 parallel tracks including Tutorial Sessions and COVID-19 Focus Sessions. The regular and invited sessions comprise 15-minute slots for the presentation video and the Q&A live session.

Bode Lecture, Plenary and Semi-Plenary Lectures: The Bode Lecture will be presented by Kristin Y. Pettersen, Norwegian University of Science and Technology, Norway. The plenary lecture will be delivered by Stephen P. Boyd, Stanford University, USA. The semi-plenary speakers will be Murat Arcak, University of California, Berkeley, USA; Franco Blanchini, University of Udine, Italy; Shinji Hara, Tokyo Institute of Technology, Japan; and Jonathan P. How, Massachusetts Institute of Technology, USA.

Workshops: A number of pre-conference workshops will be offered on Saturday and Sunday, December 12-13, 2020 during the same hours as the conference:

Two-day Workshops, 1-5 pm UTC, December 12 & 13 (Sat & Sun)

T1. Advanced Battery Management: Recent Advances and Future Innovations

T2. Real time NMPC: From Fundamentals to Industrial Applications

T3. Data-driven Control

T4. Dynamics in Social and Economic Networks

T5. Non-linear and adaptive control: A tribute to Laurent Praly for his 65th birthday

One-day Workshops, 1-5 pm UTC, December 13 (Sun)

O1. Control, Optimization, and Learning Methods for Emerging Mobility Systems

O2. Compressed Sensing and Sparse Representation for Systems and Control

O3. Learning and Security for Multi-Agent Systems

Registration: Currently, conference registration can still be made at much reduced rates than originally planned due to going virtual. The first category includes paper uploads. The second category, newly introduced for the virtual CDC, does not include paper uploads and is available at rates even further reduced. Both categories include access to the virtual venue, electronic proceedings, live sessions, and on-demand presentations. For details, please visit the conference website.

General Chairs

Richard D. Braatz, Massachusetts Institute of Technology, USA

Chung Choo Chung, Hanyang University, Republic of Korea

Advisor

Dong-il Dan Cho, Seoul National University, Republic of Korea

Program Chairs

Jay H. Lee, KAIST, Republic of Korea

Luca Zaccarian, LAAS-CNRS, France, University of Trento, Italy

1.9. IEEE CSS Outreach Fund: Fall Solicitation
  Contributed by: Antonella Ferrara, antonella.ferrara@unipv.it

IEEE Control Systems Society (CSS) Outreach Fund Fall Solicitation

The IEEE Control Systems Society (CSS) Outreach Fund provides grants for projects that will benefit CSS members and the control community in general. Since its inception in 2011, the Fund has funded 81 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 2020 fall solicitation will be held from **November 1 to 22, 2020**.

The maximum amount that can be requested for an Outreach project has recently been increased to **$20K**.

Because of the time needed for grant approval and processing, any CSS member interested in pursuing an Outreach-funded project starting in the second semester of 2021 needs to apply during this solicitation.

Information regarding the program, which includes proposal requirements descriptions, a list of current and past funded projects, and an informative 10-minute video overview can be found in:

IEEE Control Systems Society Outreach Fund

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

The CSS Outreach Fund - August 2019 issue of the Control Systems Magazine

Inquiries, notices of intent, and requests for application materials must be made directly to Antonella Ferrara, Outreach Task Force Chair, at antonella.ferrara@unipv.it.

2 Miscellaneous

2.1. International Graduate School on Control
    Contributed by: Antoine Girard, antoine.girard@l2s.centralesupelec.fr

2021 International Graduate School on Control (EECI-IGSC-2021)

The EECI-IGSC-2021 will be proposing 22 independent courses to be held between February and July 2021. The detailed program with course summaries can be found on the EECI website:

http://www.eeci-igsc.eu/igsc-program-2021/

The registrations will open in November. The deadline for early registration to the modules M01 to M09 is 12 January 2021 and to the modules M10 to M22 is 28 March 2021.

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2.2. Short Course on Dynamic Traffic Flow Modeling and Control
    Contributed by: Diamantis Manolis, dmanolis@dssl.tuc.gr

14th Short Course 2021 on Short Course on Dynamic Traffic Flow Modeling and Control
Technical University of Crete
Dynamic Systems and Simulation Laboratory
Chania 73100, Greece
14th Short Course 2021

Lecturer: Prof. Markos Papageorgiou
Date: 8 - 19 February 2021 (3 lecture hours per day)
Location: online
Fee: 1.700 €(for graduate students: 1.300 €)
(20% reduction is granted in case of more than one participation from the same institution)

Scope: The design, analysis, implementation and evaluation of Intelligent Transportation Systems (ITS) requires good knowledge of traffic flow modelling and control techniques as well as of powerful methodologies from the areas of optimisation, automatic control, networks and dynamic systems. The purpose of this intensive course (10 half-days) is to cover the basic theory, methods and tools necessary for efficient design of ITS on road and freeway networks. After a basic introduction to dynamic systems and control, the course continues with traffic flow modelling and validation issues, the modelling of traffic networks, dynamic traffic assignment and simulation tools. Measurement devices and estimation problems in traffic networks, including automatic incident detection and OD estimation, are presented and discussed. The state-of-the-art techniques in freeway traffic control, road traffic control and integrated traffic control, employing ramp metering, signal control, variable speed limits and route guidance, along with several field-implemented case studies are presented. Emerging and future prospects and challenges related to vehicle automation and communication systems are discussed. Brief accounts of some optimisation, control and estimation techniques are provided. Some 50 exercises are delivered for consolidation of the provided

knowledge. Written materials, including all utilized slides, are provided in electronic form.

Who Should Attend: Graduate students, faculty members, engineers, researchers, consultants, and government employees who are interested in improving their understanding of advanced traffic flow modelling and control tools and in becoming familiar with their application in ITS.

Please forward the information about the Short Course to any of your colleagues who may be interested.

For more information (Detailed Course Contents, About the Lecturer, Registration Form, Evaluation of Previous Courses), please visit the site:
http://www.dssl.tuc.gr/en/shortcourse/ShortCourseAnnouncement.pdf
or email shortcourse1@dssl.tuc.gr or contact:

Prof. Markos Papageorgiou
Director
Dynamic Systems & Simulation Laboratory
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2.3. Graduate Course on Model-Based Fault Diagnosis
Contributed by: Daniel Ossmann, daniel.ossmann@hm.edu

Graduate Course on "Model-Based Fault Diagnosis - A Linear Synthesis Framework using MATLAB"

A 21-hour Graduate Module Course on "Model-Based Fault Diagnosis - a Linear Synthesis Framework using MATLAB" will be held at the University of Applied Sciences, Munich, Germany, in the period March 8-12, 2021. The course is organized by the International Graduate School on Control. The online registration for this course is open by now at http://www.eeci-igsc.eu/registration/. The deadline for the reduced fee is December 31, 2020.

Lecturers: Dr. Andreas Varga, IEEE Fellow, Former Senior Scientist at DLR (German Aerospace Center) https://sites.google.com/view/andreasvarga/ and Prof. Daniel Ossmann, Munich University of Applied Sciences https://www.hm.edu/en/index.en.html

Abstract: The model-based approach to fault detection and diagnosis has been the subject of ongoing research for the past few decades. The aim of this course is to describe the recent developments in the synthesis procedures of fault detection and isolation filters relying on computational approaches suitable to solve the basic synthesis problems in the most general setting. Freely available MATLAB-based software will serve as basis of computational synthesis experiments.

The course is centered on chapters 1–8 of the book: "A. Varga, Solving Fault Diagnosis Problems – Linear Synthesis Techniques, Springer, 2017."

Covered topics:

- Modelling systems with faults
- Basic problems of linear model-based fault diagnosis
- Nullspace-based synthesis paradigm
- Solution of synthesis problems of fault detection and isolation filters
- Solution of synthesis problems of model-detection filters using multiple-model-based techniques
- Computational issues in solving the synthesis problems
- Computational synthesis experiments using MATLAB

For more information see

https://drive.google.com/file/d/1Yetn_tyOWmcuuoZQBRbN4qzad6KPWhUl/view

For information on software see

https://sites.google.com/view/andreasvarga/home/software/fditools

The course will take place at the main campus of the Munich University of Applied Sciences. For information on the course venue see https://www.hm.edu/en/

3 Books

3.1. Sparsity Methods for Systems and Control
Contributed by: Mark de Jongh, mark.dejongh@nowpublishers.com

New book on Sparsity Methods for Systems and Control

Dear Reader,
Now Publishers are glad to announce the publication of a new book titled "Sparsity Methods for Systems and Control", from author Masaaki Nagahara of the University of Kitakyushu in Japan. The book (ISBN: 978-1-68083-724-7) is available in print as hardcover and full colour, as well as an Open Access eBook.

The method of sparsity has been attracting a lot of attention in the fields related not only to signal processing, machine learning, and statistics, but also systems and control. The method is known as compressed sensing, compressive sampling, sparse representation, or sparse modeling. More recently, the sparsity method has been applied to systems and control to design resource-aware control systems. This book gives a comprehensive guide to sparsity methods for systems and control, from standard sparsity methods in finite-dimensional vector spaces to optimal control methods in infinite-dimensional function spaces.

For further information please see the Now Publishers website
(www.nowpublishers.com/article/BookDetails/9781680837247)
or the book webpage on Amazon.com.

3.2. Discrete Networked Dynamic Systems
Contributed by: Sonnini Yura, s.yura@elsevier.com

Discrete Networked Dynamic Systems authored by Magdi S. Mahmoud and Yuanqing Xia
ISBN: 9780128236987
October 27th, 2020; Academic Press
Paperback, 484 pages, $130
https://www.elsevier.com/books/discrete-networked-dynamic-systems/mahmoud/978-0-12-823698-7

Description: Discrete Networked Dynamic Systems: Analysis and Performance provides a high-level treatment of a general class of linear discrete-time dynamic systems interconnected over an information network, exchanging relative state measurements or output measurements. It presents a systematic analysis of the material and provides an account to the math development in a unified way.

The topics in this book are structured along four dimensions: Agent, Environment, Interaction, and Organization, while keeping global (system-centered) and local (agent-centered) viewpoints.

The focus is on the wide-sense consensus problem in discrete networked dynamic systems. The authors rely heavily on algebraic graph theory and topology to derive their results. It is known that graphs play an important role in the analysis of interactions between multiagent/distributed systems. Graph-theoretic analysis provides insight into how topological interactions play a role in achieving coordination among

agents. Numerous types of graphs exist in the literature, depending on the edge set of G. A simple graph has no self-loop or edges. Complete graphs are simple graphs with an edge connecting any pair of vertices. The vertex set in a bipartite graph can be partitioned into disjoint non-empty vertex sets, whereby there is an edge connecting every vertex in one set to every vertex in the other set. Random graphs have fixed vertex sets, but the edge set exhibits stochastic behavior modeled by probability functions. Much of the studies in coordination control are based on deterministic/fixed graphs, switching graphs, and random graphs.

Key Features:

- This book addresses advanced analytical tools for characterization control, estimation and design of networked dynamic systems over fixed, probabilistic and time-varying graphs
- Provides coherent results on adopting a set-theoretic framework for critically examining problems of the analysis, performance and design of discrete distributed systems over graphs
- Deals with both homogeneous and heterogeneous systems to guarantee the generality of design results

Table of Contents:

Chapter 1. Mathematical background and examples
Chapter 2. Structural and performance patterns
Chapter 3. Consensus of systems over graphs
Chapter 4. Energy-based cooperative control
Chapter 5. Performance of consensus algorithms
Chapter 6. Event-based coordination control
Chapter 7. Advanced approaches to multiagent coordination
Chapter 8. State estimation techniques
Chapter 9. Advanced distributed filtering

4   Journals

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

Evolution Equations & Control Theory
December 2020, Volume 9, Issue 4
Special issue on modeling, analysis and control of contact problems
https://www.aimsciences.org/journal/A0000-0000/2020/9/4

Preface:

Weimin Han, Stanislaw Migórski and Mircea Sofonea
2020, 9(4): doi: 10.3934/eect.2020090

Papers:

1.A nonsmooth approach for the modelling of a mechanical rotary drilling system with friction
Samir Adly and Daniel Goeleven
2020, 9(4): 915-934 doi: 10.3934/eect.2020042
2.Measurable solutions to general evolution inclusions
Kevin T. Andrews, Kenneth L. Kuttler, Ji Li and Meir Shillor
2020, 9(4): 935-960 doi: 10.3934/eect.2020055
3.Numerical analysis of a nonmonotone dynamic contact problem of a non-clamped piezoelectric viscoelastic body
Krzysztof Bartosz
2020, 9(4): 961-980 doi: 10.3934/eect.2020059
4.A dynamic viscoelastic problem with friction and rate-depending contact interactions
Marius Cocou
2020, 9(4): 981-993 doi: 10.3934/eect.2020060
5. Stability analysis and optimal control of a stationary Stokes hemivariational inequality
Changjie Fang and Weimin Han
2020, 9(4): 995-1008 doi: 10.3934/eect.2020046
6.On dynamic contact problem with generalized Coulomb friction, normal compliance and damage
Leszek Gasiński and Piotr Kalita
2020, 9(4): 1009-1026 doi: 10.3934/eect.2020049
7.Relaxation of optimal control problems driven by nonlinear evolution equations
Leszek Gasiński and Nikolaos S. Papageorgiou
2020, 9(4): 1027-1040 doi: 10.3934/eect.2020050
8.Measurable solutions for elliptic and evolution inclusions
Kenneth Kuttler
2020, 9(4): 1041-1055 doi: 10.3934/eect.2020041
9.Differential inclusion problems with convolution and discontinuous nonlinearities
Yongjian Liu, Zhenhai Liu and Dumitru Motreanu
2020, 9(4): 1057-1071 doi: 10.3934/eect.2020056

10. History-dependent differential variational-hemivariational inequalities with applications to contact mechanics
Zhenhai Liu, Van Thien Nguyen, Jen-Chih Yao and Shengda Zeng
2020, 9(4): 1073-1087 doi: 10.3934/eect.2020044

11. Fully history-dependent evolution hemivariational inequalities with constraints
Stanisław Migórski, Yi-bin Xiao and Jing Zhao
2020, 9(4): 1089-1114 doi: 10.3934/eect.2020047

12. Topological optimization and minimal compliance in linear elasticity
Cornel Marius Murea and Dan Tiba
2020, 9(4): 1115-1131 doi: 10.3934/eect.2020043

13. Vibrations of a beam between stops: Collision events and energy balance properties
Laetitia Paoli
2020, 9(4): 1133-1151 doi: 10.3934/eect.2020057

14. Existence for a quasistatic variational-hemivariational inequality
Zijia Peng, Cuiming Ma and Zhonghui Liu
2020, 9(4): 1153-1165 doi: 10.3934/eect.2020058

15. Tykhonov well-posedness of a viscoplastic contact problem
Mircea Sofonea and Yi-bin Xiao
2020, 9(4): 1167-1185 doi: 10.3934/eect.2020048

16. Convergence of simultaneous distributed-boundary parabolic optimal control problems
Domingo Tarzia, Carolina Bollo and Claudia Gariboldi
2020, 9(4): 1187-1201 doi: 10.3934/eect.2020045

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4.2. Systems Science & Control Engineering: An Open Access Journal
    Contributed by: Richard Goodman, richard.goodman@tandf.co.uk

Systems Science & Control Engineering: An Open Access Journal
EiC: Zidong Wang, Brunel University, UK
www.tandfonline.com/tssc
Volume 8, 2020

Papers:

- Nonlinear robot system finite time consensus control using an adaptive terminal sliding mode approach in presence of input saturation and external disturbance, Chuanbao Zhang , Tingting Xing , Jiandong Li & Hadi Imani
- Tooth identification based on teeth structure feature, Lixin Wang , Jiafa Mao , Yahong Hu & Weigou Sheng
Video fingerprinting based on quadruplet convolutional neural network, Xinwei Li , Chen Guo , Yi Yang & Lianghao Xu
- Event-triggered consensus control for general second-order multi-agent systems, Fan Liu & Zhijian Ji An improved volumetric grid deep network model for point cloud segmentation, Xinliang Zhang , Chenlin Fu & Yunji Zhao
- Electric vehicle regional management system based on the BSP model and multi-information fusion, Zhihui Zeng & Xintong Sun

- An improved YOLOv3 model based on skipping connections and spatial pyramid pooling, Xinliang Zhang , Wanru Wang , Yunji Zhao & Heng Xie

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

IET Control Theory & Applications
Volume 14, Issue 16
https://digital-library.theiet.org/content/journals/iet-cta/14/16

Research Articles:

- Xiaowei Gu ; Yugang Niu ; Bei Chen, Adaptive non-singular fast terminal sliding mode control for multi-agent systems with unknown non-linear dynamics, DOI: 10.1049/iet-cta.2019.1136
- Yanbin Zhao and Guang-Da Hu, Separation principle of quasi-one-sided Lipschitz non-linear systems, DOI: 10.1049/iet-cta.2019.0230
- Kaoru Teranishi ; Naoki Shimada ; Kiminao Kogiso, Stability-guaranteed dynamic ElGamal cryptosystem for encrypted control systems, DOI: 10.1049/iet-cta.2019.0729
- Hui Wang ; Huiling Xu ; Xuefeng Chen ; Dan Zhang, Exponential stability analysis and model reduction for spatially interconnected discrete-time systems with time-varying delay, DOI: 10.1049/iet-cta.2020.0013
- Zihao Cheng ; Dong Yue ; Songlin Hu ; Chongxin Huang ; Chunxia Dou ; Xiaohua Ding, Resilient dynamic event-triggered control for multi-area power systems with renewable energy penetration under DoS attacks, DOI: 10.1049/iet-cta.2019.1478
- Tao Wang ; Weiming Xiang ; Yuwen Liu, Switching stabilising control of VSC-HVDC transmission systems, DOI: 10.1049/iet-cta.2019.1433
- Haotian Wang ; Yanqian Wang ; Guangming Zhuang ; Junwei Lu, Asynchronous passive dynamic event-triggered controller design for singular Markov jump systems with general transition rates under stochastic cyber-attacks, DOI: 10.1049/iet-cta.2019.1410
- Chengjie Xu ; Bofan Li ; Ling Yang, Semi-global containment of discrete-time high-order multi-agent systems with input saturation via intermittent control, DOI: 10.1049/iet-cta.2020.0110
- Ziyun Wang ; Guixiang Xu ; Yan Wang ; Ju H. Park ; Zhicheng Ji, Orthotopic-filtering-based hierarchical fault diagnosis algorithm for linear recursive models, DOI: 10.1049/iet-cta.2019.1229
- Junchao Ren ; Fangfang Li ; Jun Fu, H-Infinity control for one-sided Lipschitz singular systems with uncertainties " ¿Robust observer-based finite-time H-Infinity control for one-sided Lipschitz singular systems with uncertainties, DOI: 10.1049/iet-cta.2019.0927
- Oscar Gonzalez and Anthony Rossiter, Fast hybrid dual mode NMPC for a parallel double inverted pendulum with experimental validation, DOI: 10.1049/iet-cta.2020.0130
- K. Sarda ; A. Yerudkar ; C. Del Vecchio, Disturbance decoupling control design for Boolean control networks: a Boolean algebra approach, DOI: 10.1049/iet-cta.2019.1144
- Xin Cheng and Huashan Liu, Bounded decoupling control for flexible-joint robot manipulators with state estimation, DOI: 10.1049/iet-cta.2019.1007
- Vibhu Kumar Tripathi ; Archit Krishna Kamath ; Laxmidhar Behera ; Nishchal K. Verma ; Saeid Nahavandi, Finite-time super twisting sliding mode controller based on higher-order sliding mode observer for real-time trajectory tracking of a quadrotor, DOI: 10.1049/iet-cta.2020.0348

- Ariana Gutiérrez ; Héctor Ríos ; Manuel Mera, Robust output-regulation for uncertain linear systems with input saturation, DOI: 10.1049/iet-cta.2020.0483
- Ding Zhou ; An Zhang ; Pan Yang, Fixed-time event-triggered consensus of second-order multi-agent systems with fully continuous communication free, DOI: 10.1049/iet-cta.2020.0401
- L. Yang ; J. Lu ; Y. Xu ; D. Li ; Y. Xi, Constrained robust model predictive control embedded with a new data-driven technique, DOI: 10.1049/iet-cta.2019.1349
- Qing Lu ; Peng Shi ; Ligang Wu ; Cheng-Chew Lim, Event-triggered estimation and model predictive control for linear systems with actuator fault, DOI: 10.1049/iet-cta.2019.1037
- Haifeng Ma ; Yangmin Li ; Zhenhua Xiong, Design of funnel function-based discrete-time sliding mode control, DOI: 10.1049/iet-cta.2019.1217
- Cui Enchang ; Jing Yuanwei ; Gao Xiaoting, Full state constraints control of switched complex networks based on time-varying barrier Lyapunov functions, DOI: 10.1049/iet-cta.2020.0165
- Muhammad Shamrooz Aslam ; Rizwan Ullah ; Xisheng Dai ; Andong Sheng, Event-triggered scheme for fault detection and isolation of non-linear system with time-varying delay, DOI: 10.1049/iet-cta.2018.5469

Brief Papers:

- Xinyue Zhang ; Yantao Wang ; Xian Zhang, Improved stochastic integral inequalities to stability analysis of stochastic genetic regulatory networks with mixed time-varying delays, DOI: 10.1049/iet-cta.2019.1174
- Sen Kuang and Xiaoke Guan, Robustness of continuous non-smooth finite-time Lyapunov control for two-level quantum systems, DOI: 10.1049/iet-cta.2019.1156
- Can Liu ; Xiang Mao ; Qunxian Zheng ; Hongbin Zhang, Unified stability criteria for continuous-time switched T-S fuzzy systems, DOI: 10.1049/iet-cta.2019.1421
- Bo Liu ; XiXi Shen ; Licheng Wu ; Housheng Su, Observability of leader-based discrete-time multi-agent systems with switching topology, DOI: 10.1049/iet-cta.2020.0202

4.4. Asian Journal of Control
Contributed by: Li-Chen Fu, lichen@ntu.edu.tw

Asian Journal of Control
Vol. 22, No. 5 September, 2020
https://onlinelibrary.wiley.com/toc/19346093/2020/22/5

Regular Papers:

1. Paper Title: A safety assessment framework of control systems according to international standards
Authors: Koichi Suyama, Noboru Sebe
2. Paper Title: Robust H-Infinity control for a class of quasi-linear uncertain stochastic time-varying delayed systems
Authors: Tianliang Zhang, Pengxiang Sun, Feiqi Deng, Weihai Zhang
3. Paper Title: Dynamic anti-windup compensator for fractional-order system with time-delay
Authors: Talar Sadalla, Dariusz Horla, Wojciech Giernacki, Piotr Kozierski
4. Paper Title: Fixed-time state estimation for a class of switched nonlinear time-varying systems
Authors: Thach Ngoc Dinh, Michael Defoort

5. Paper Title: Transient response comparison of feedback and feed-forward compensation methods in systems with zero steady state error

Authors: Fernando Matía

6. Paper Title: Robust control of wind turbines based on fractional nonlinear disturbance observer

Authors: Aldo Jonathan Muñoz-Vázquez, Vicente Parra-Vega, Anand Sánchez-Orta, Gerardo Romero-Galván, David Lara-Alabazares

7. Paper Title: PI-PD controller design for time delay systems via the weighted geometrical center method

Authors: Munevver Mine Ozyetkin, Cem Onat, Nusret Tan

8. Paper Title: Modified bang-bang controller for maximal and minimal time optimal control problems

Authors: Kyung-Tae Lee, Sang-Young Oh, Ho-Lim Choi

9. Paper Title: On the output feedback stabilization for distributed semilinear systems

Authors: El Hassan Zerrik, Abderrahman Ait Aadi, Rachid Larhrissi

10. Paper Title: Nonlinear output feedback control of V2G single-phase on-board BEV charger

Authors: Aziz Rachid, Hassan El Fadil, Fouad Giri, Abdellah Lassioui

11. Paper Title: Eigenvalue assignment via uncertain state feedback controllers

Authors: Esmaeil Siahlooei, Seyed Abolfazl Shahzadeh Fazeli, Seyed Mehdi Karbassi

12. Paper Title: State estimation for nonlinear conformable fractional-order systems: A healthy operating case and a faulty operating case

Authors: Assaad Jmal, Mourad Elloumi, Omar Naifar, Abdellatif Ben Makhlouf, Mohamed Ali Hammami

13. Paper Title: A delay-dependent asymptotic stability criteria for uncertain BAM neural networks with leakage and discrete time-varying delays: A novel summation inequality

Authors: Chandran Sowmiya, Ramachandran Raja, Jinde Cao, Grienggrai Rajchakit, Ahmed Alsaedi

14. Paper Title: Nonlinear modeling of PEMFC based on fractional order subspace identification

Authors: Zhidong Qi, Qi Sun, Weiping Ge, Yongkang He

15. Paper Title: Dynamic output feedback control with output quantizer for nonlinear uncertain T-S fuzzy systems with multiple time-varying input delays and unmatched disturbances

Authors: Wei Zheng, Hongbin Wang, Hongrui Wang, Zhiming Zhang

16. Paper Title: Modified performance of MIMO wireless networked time-delay systems over fading channels

Authors: Heng Zhan, Ling-Li Cheng, Zhi-Xin Zhao, Qing-Sheng Yang, Tao Han

17. Paper Title: Second order sliding mode control with MARS speed estimation of linear induction motors considering unknown longitudinal end effects

Authors: Lei Zhang, Hui Zhang, Yongwen Liu, Dongqing Liu

18. Paper Title: Model predictive control for LPV models with maximal stabilizable model range

Authors: Yuanqing Yang, Baocang Ding

19. Paper Title: PDα-type iterative learning control for fractional-order linear continuous-time switched systems

Authors: Kejun Zhang, Guohua Peng

20. Paper Title: Unscented Kalman filter for continuous-time nonlinear fractional-order systems with process and measurement noises

Authors: Zhe Gao, Yunting Liu, Chao Yang, Xiaojiao Chen

21. Paper Title: A LADRC based fuzzy PID approach to contour error control of networked motion control system with time-varying delays

Authors: Yao-Wei Wang, Wen-An Zhang, Hui Dong, Li Yu

22. Paper Title: Mean-field backward stochastic differential equation with non-Lipschitz coefficient

Authors: Guangchen Wang, Huanjun Zhang

23. Paper Title: On the simultaneous stabilization for a family of time-varying linear systems under the transmission condition
Authors: Liu Liu, Yufeng Lu

24. Paper Title: A nonlinear state-feedback state-feedforward tracking control strategy for a boiler-turbine unit
Authors: Guoxu Wang, Jie Wu, Xiaoqian Ma

25. Paper Title: Backstepping design for a class of coupled parabolic PDEs with spatially varying coefficient
Authors: Najmeh Ghaderi, Mohammad Keyanpour

26. Paper Title: Exponential quasi-(Q,S,R)-dissipativity and practical stability for switched nonlinear systems
Authors: Shuo Liu, Hongbo Pang

27. Paper Title: The free-weight matrix approach to event-driven output H-Infinity control of networked control systems
Authors: Binbin Shen, Jing Guo, Liankun Sun

28. Paper Title: Asynchronous H-Infinity filtering for time delayed APF with MDADT based on T-S fuzzy model
Authors: Liangliang Zhang, Hongbin Zhang, Yang Li

29. Paper Title: Matrix approach to simplification of finite state machines using semi-tensor product of matrices
Authors: Jumei Yue, Yongyi Yan, Zengqiang Chen

30. Paper Title: Robust H-Infinity control of uncertain singular systems based on equivalent-input-disturbance approach
Authors: Fang Gao, Wenbin Chen, Min Wu, Jinhua She

31. Paper Title: Fixed-time adaptive sliding mode trajectory tracking control of uncertain mechanical systems
Authors: Liang Sun, Yuanji Liu

32. Paper Title: Near-optimal control for a stochastic SIRS model with imprecise parameters
Authors: Xiaojie Mu, Qimin Zhang, Libin Rong

Brief Papers:

1. Paper Title: Factorization-based frequency-weighted optimal Hankel-norm model reduction
Authors: Deepak Kumar, Victor Sreeram

2. Paper Title: Payload pendulation and position control systems for an offshore container crane with adaptive-gain sliding mode control
Authors: Quang Hieu Ngo, Ngo Phong Nguyen, Chi Ngon Nguyen, Thanh Hung Tran, Van Huu Bui

3. Paper Title: The existence and exponential stability of periodic solution for impulsive delay differential equations
Authors: Yusen Lin, Xiaoqin Pu, Dingshi Li

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

Papers:

- Investigation on Physical Meaning of Three-loop Autopilot, Chang-Hun Lee*, Shaoming He, and Ju-Hyeon Hong, pp.2709-2720
- Observer-based Finite-time Model Reference Adaptive State Tracking Control with Actuator Saturation, Zhiqiang Wang, Dakuo He*, Qiang Zhang, and Jiahui Shi, pp.2721-2733
- Optimum Design of Robust Adaptive Controller with Actuator Constraints, M. Navabi*, Hamidreza Mirzaei, and Ali Davoodi, pp.2734-2741
- Formation Control Strategy for Underactuated Unmanned Surface Vehicles Subject to Unknown Dynamics and External Disturbances with Input Saturation, Dong Dong Mu*, Guo Feng Wang, and Yun Sheng Fan, pp.2742-2752
- Observer-based Time-varying Formation Tracking for One-sided Lipschitz Nonlinear Systems via Adaptive Protocol, Chenhang Yan, Wei Zhang*, Xiaohang Li, and Yuchen Qian, pp.2753-2764
- Leader-following Consensus of First-order Multi-agent Systems with Dynamic Hybrid Quantizer, Huaitao Shi*, Maxiao Hou, Yuhou Wu, Jin Guo, and Dakuo Feng, pp.2765-2773
- H-Infinity Control for Network T-S Fuzzy Systems under Time Varying Delay for Multi-area Power Systems, Muhammad Shamrooz Aslam and Xisheng Dai*, pp.2774-2787
- Design of a Fuzzy Logic-based MPPT Controller for a PV System Employing Sensorless Control of MRAS-based PMSM, Abbas Mahmood Oghor Anwer, Fuad Alhaj Omar, and Ahmet Afsin Kulaksiz*, pp.2788-2797
- Event-triggered Finite-time Extended Dissipative Control for a Class of Switched Nonlinear Systems via the T-S Fuzzy Model, Hui Gao, Hongbin Zhang*, and Jianwei Xia, pp.2798-2807
- Robust Controller Design for Uncertain Linear Systems with Finite-frequency Specifications: A Polynomially Parameter-dependent Approach, Yingying Ren, Qing Li, Da-Wei Ding*, Wen Kang, and Yunxia Xia, pp.2808-2817
- On the Ultimate Uniform Bounded-stabilization for a Class of Perturbed Time Delay System via Suboptimal Robust Control, Omar Santos, Miguel Ramírez, Carlos Cuvas, Liliam Rodríguez-Guerrero, Hugo Romero, and Patricio Ordaz*, pp.2818-2829
- Position Control of Robotic Manipulator Using Repetitive Control Based-on Inverse Frequency Response Design, Benjamas Panomruttanarug, pp.2830-2841
- Adaptive Event-triggered Control for Discrete-time Networked Control Systems with Actuator Faults and Nonlinearity, Luo Zhang, Mou Chen*, Tao Li, and Huijiao Wang, pp.2842-2856
- Event-triggered Stabilization of Linear Time-delay Systems by Static Output Feedback Control, Xiaoli Wang, Peng Xiang, Wenfeng Hu*, and Tingwen Huang, pp.2857-2866

- Event-triggered Control for Switched Affine Linear Systems, Hongsheng Hu, Shipei Huang*, and Zhengjiang Zhang, pp.2867-2878
- Maximum Likelihood Iterative Algorithm for Hammerstein Systems with Hard Nonlinearities, Yan Pu, Yongqing Yang*, and Jing Chen, pp.2879-2889
- Adaptive Static Output Feedback Anti-disturbance Quantized Control for Nonlinear Systems with Multi-source Disturbances, Yitong Zhou and Haibin Sun*, pp.2890-2897
- Aperiodic Sampled-data Control for Exponential Synchronization of Chaotic Delayed Neural Networks with Exponentially Decaying Gain, Jikai Wang, Xia Huang*, Zhen Wang, Jianwei Xia, and Hao Shen, pp.2898-2906
- Observer-based Adaptive Control for a Class of Uncertain Switched Systems with Time-delay: A Sliding Mode Approach, Luxin Lin, Zhen Liu*, Yonggui Kao*, and Ruiping Xu, pp.2907-2916
- Design of a Novel Boomerang Trajectory for Sliding Mode Controller, Kamalesh MS*, Senthilnathan Nattuthurai, and Bharatiraja Chokkalingam, pp.2917-2928
- Constraint-augmented Kalman Filter for Magnetometer-free 3D Joint Angle Determination, Jung Keun Lee*, Tae Hyeong Jeon, and Woo Chang Jung, pp.2929-2942
- Analysis and Evaluation of Path Planning Algorithms for Autonomous Driving of Electromagnetically Actuated Microrobot, Seung-hyun Lim, Sun Woo Sohn, Hyoryong Lee, Donghyeon Choi, Eunshil Jang, Minhye Kim, Junhyeong Lee, and Sukho Park*, pp.2943-2954
- 3D Localization of a Mobile Robot by Using Monte Carlo Algorithm and 2D Features of 3D Point Cloud, Vinicio Rosas-Cervantes and Soon-Geul Lee*, pp.2955-2965
- Design and Kinematic Modeling of a Notch Continuum Manipulator for Laryngeal Surgery, Haodong Wang, Xiaolong Wang, Wenlong Yang, and Zhijiang Du*, pp.2966-2973
- Development of a Shared Controller for Obstacle Avoidance in a Teleoperation System, JiWoong Han, Kyunghwan Cho, Inhoon Jang, Chanyougn Ju, Hyoung Il Son, and Gi-Hun Yang*, pp.2974-2982

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

Systems & Control Letters
Volume 144, October 2020, 104759

Papers:

- Practical exponential stability of stochastic age-dependent capital system with Lévy noise, Weijun Ma, Xiaohu Luo, Quanxin Zhu, Article 104759
- Comments on "Output synchronization of nonlinear heterogeneous multi-agent systems with switching networks": [Systems & Control Letters 125 (2019) 45-50], Haotian Xu, Jingcheng Wang, Bohui Wang, Yan Song, Ibrahim Brahmia, Article 104756
- A central bank strategy for defending a currency peg, Eyal Neuman, Alexander Schied, Chengguo Weng, Xiaole Xue, Article 104761
- A distributed scheme for secondary frequency control with stability guarantees and optimal power allocation, Andreas Kasis, Nima Monshizadeh, Ioannis Lestas, Article 104755
- A note on sampled-data observers, Iasson Karafyllis, Tarek Ahmed-Ali, Fouad Giri, Article 104760

- Semi-global exponential stability of augmented primal–dual gradient dynamics for constrained convex optimization, Yujie Tang, Guannan Qu, Na Li, Article 104754
- Exponential stability for infinite-dimensional non-autonomous port-Hamiltonian Systems, Björn Augner, Hafida Laasri, Article 104757
- Distance estimates to feasible controls for systems with final point constraints and second order necessary optimality conditions, H. Frankowska, N.P. Osmolovskii, Article 104770
- On vanishing gains in robust adaptation of switched systems: A new leakage-based result for a class of Euler–Lagrange dynamics, Spandan Roy, Elias B. Kosmatopoulos, Simone Baldi, Article 104773
- Stationary distribution of stochastic population dynamics in state-dependent random environments, Huijie Ji, Fubao Xi, Article 104774
- Optimal cooperative multiple-attackers scheduling against remote state estimation of cyber-physical systems, Junhui Zhang, Jitao Sun, Article 104771
- Design and analysis of a potential-based controller for safe robot navigation in unknown GPS-denied environments with strictly convex obstacles, Hamed Farivarnejad, Spring Berman, Article 104772
- Finite-time and fixed-time input-to-state stability: Explicit and implicit approaches, Francisco Lopez-Ramirez, Denis Efimov, Andrey Polyakov, Wilfrid Perruquetti, Article 104775

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

IEEE/CAA Journal of Automatica Sinica
Volume 7 (2020), Issue 6 (November)
http://ieeexplore.ieee.org/xpl/RecentIssue.jsp?punumber=6570654

Papers:

- Understanding Nonverbal Communication Cues of Human Personality Traits in Human-Robot Interaction. Z. H. Shen, A. Elibol, and N. Y. Chong, page 1465
- Neural-Network-Based Nonlinear Model Predictive Tracking Control of a Pneumatic Muscle Actuator-Driven. Y. Cao and J. Huang, page 1478
- Reinforcement Learning Based Data Fusion Method for Multi-Sensors. T. L. Zhou, M. Chen, and J. Zou, page 1489
- Group Multi-Role Assignment With Conflicting Roles and Agents. H. B. Zhu, page 1498
- Privacy Preserving Solution for the Asynchronous Localization of Underwater Sensor Networks. H. Y. Zhao, J. Yan, X. Y. Luo, and X. P. Guan, page 1511
- A Behavioral Authentication Method for Mobile Based on Browsing Behaviors. D. X. Chen, Z. J. Ding, C. G. Yan, and M. M. Wang, page 1528
- Four Wheel Independent Drive Electric Vehicle Lateral Stability Control Strategy. Y. T. Tian, X. H. Cao, X. Y. Wang, and Y. B. Zhao, page 1542
- Stabilization Parametric Region of Distributed PID Controllers for General First-Order Multi-Agent Systems With Time Delay. X. Y. Yu, F. Yang, C. Zou, and L. L. Ou, page 1555
- Dense Mapping From an Accurate Tracking SLAM. W. J. Huang, G. S. Zhang, and X. W. Han, page 1565
- An Improved Torque Sensorless Speed Control Method for Electric Assisted Bicycle With Consideration of Coordinate Conversion. T. H. Li, Q. H. Yang, X. W. Tu, and B. Ren, page 1575

4.8. Automatica
Contributed by: Kay Tancock, k.tancock@elsevier.com

Automatica
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Contributed by: Kay Tancock, k.tancock@elsevier.com

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Contributed by: Kay Tancock, k.tancock@elsevier.com

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Contributed by: Kay Tancock, k.tancock@elsevier.com

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Contributed by: Fikret Aliev, chief_ed@acmij.az

Applied and Computational Mathematics an International Journal
Vol.19, No.3, October 2020
www.acmij.az

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4.15. CFP: IEEE Systems Journal
Contributed by: Brooke Johnson, bjohnson@conferencecatalysts.com

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Amir Aghdam

Editor-in-Chief, IEEE Systems Journal

4.16. CFP: Information Theory in Motion Planning and Control
Contributed by: Panagiotis Tsiotras, tsiotras@gatech.edu

Call for Papers for the Special Issue on "Information Theory in Motion Planning and Control"

The journal Entropy is soliciting papers for a Special Issue on emerging applications and theory of information theory, as applied broadly in the field of robotics and control. Both application-driven research, cultivating and promoting non-conventional uses of information theory in robotics and control, as well as theory-oriented research papers in these areas are solicited.

Recent advances in autonomous systems, have made it clear that a key aspect to the successful development of these systems is the harmonious integration of a diverse set of disciplines including perception, cognition, control, decision-making, and planning, among others. Motion planning and control techniques, in particular, have been bolstered in recent years partly because of the advancement of capable computational platforms, the availability of low-cost sensors, combined with the prevalence of statistical (machine) learning techniques and methodologies, that have allowed operation in poorly characterized or previously unknown environments. Both in motion planning and control, a fundamental issue is uncertainty characterization and uncertainty mitigation using feedback. There is a growing realization in the community that information theory can play a larger role in this context, as it can provide the correct framework, along with the right set of tools, to answer important questions such as what is relevant in the problem and what is not, what is the best way to transmit information between the controller and the sensor, what signals to communicate between various agents in a multi-agent network to manage bandwidth and/or mitigate external attacks, etc. Information theory can provide the missing link to close perception-action-communication (PAC) loops in complex autonomous systems. There is a growing body of the literature, where information-theoretic concepts play a role in several contexts, including state representations, strategic perception, communication and coordination in multi-agent systems, and the analysis of machine learning algorithms.

Topics relevant to this Special Issue include (but are not limited to):
• Intelligent perception
• Information theory in reinforcement learning
• Multi-agent and networked control systems
• Information-theoretic state representations
• Statistical mechanics in control and decision-making
• Joint communication, sensing, and control
• Resource-constrained control, planning, and perception
• Entropy and feedback systems

The Special Issue will continue to accept submissions until June 15, 2021. All papers will be published immediately after acceptance on an ongoing basis. For more information please consult:

https://www.mdpi.com/journal/entropy/special_issues/motion_control

Takashi Tanaka and Panagiotis Tsiotras (Guest Editors)

4.17. CFP: International Journal of Systems Science
Contributed by: Richard Goodman, richard.goodman@tandf.co.uk

International Journal of Systems Science
Special Issue: IT2 FMB Control Design and Membership-Functions-Dependent Analysis
Guest Editors:
Bo Xiao (Imperial College London), Hak-Keung Lam (King's College London), Sakthivel Rathinasamy (Bharathiar University) & Radu-Emil Precup (Politehnica University of Timisoara).

Deadline: 31st December 2020

Summary and Scope: As a recent research hot spot in the fuzzy control field, the Interval Type-2 (IT2) Fuzzy-Model-Based (FMB) control design has demonstrated its capacity in handling the uncertainties in nonlinear control systems directly. Within the IT2 control design framework, the uncertainties considered can be parameters uncertainty, mismeasurement uncertainty, observation uncertainty, communication uncertainty, etc. The first successful attempt on the stability analysis of FMB control systems subject to parameter uncertainty was conducted by Dr. H.K. Lam in 2008 (Lam, H.K. and Seneviratne, L.D., 2008. Stability analysis of interval type-2 fuzzy-model-based control systems. IEEE Transactions on Systems, Man, and Cybernetics, Part B (Cybernetics), 38(3), pp.617-628). In this work, Dr.Lam has demonstrated that IT2 membership functions can be effectively utilized to include the parameter uncertainty into the stability analysis and conditions.

Thus, the stability conditions are valid for all the possible parameters within certain parameter ranges. Since then, there were follow-up works utilizing IT2 fuzzy sets to deal with the control design of nonlinear systems subject to uncertainty. Besides, when the membership functions of the fuzzy model and controller are different in the number of rules or/and shapes, the mismatch issue of membership functions occurs. In this case, the parallel distributed compensation (PDC) approach cannot be applied to relax the stability conditions since it demands the perfect match of the membership functions of the fuzzy model and controller. In addition, the mismatch of membership functions of the fuzzy model and controller has been observed even when the membership functions are intended to be designed as exactly the same in some specific control mechanisms, such as the sampled-data control design, networked control design, etc. Along the membership-function-dependent (MFD) approaches with the imperfect premise matching (IPM) concept, the IT2 FMB control strategies were adopted to address the mismatch issue of the premise variables of the fuzzy model and controller. Since the mismatch of premise variables is considered in the analysis, the obtained stability conditions are more rigorous.

During the past decade, researchers gradually recognized the importance and necessity of utilizing IT2 fuzzy sets in the FMB control design. Although there were already some seminal works on IT2 FMB control systems that can be found in the literature, there are still many interesting related topics await.

The potential research topics for IT2 FMB control systems can be the relaxation of stability conditions through MFD approaches, different control design methodologies, addressing the specific issues in fuzzy control systems along with the IT2 design, applications of IT2 fuzzy control to physical systems, etc. The list of possible topics includes, but is not limited to:
• Relaxation of stability conditions through MFD approaches;
• New stability conditions of IT2 FMB control systems;
• IT2 modeling of nonlinear systems subject to uncertainty;
• Addressing the mismatch issue of membership functions within the IT2 framework;
• Adaptive and optimal control design for IT2 FMB control systems;
• Networked IT2 FMB control design;
• IT2 fuzzy neural-network control systems;
• Stability/performance/robustness analysis of IT2 FMB control system;
• Improve the IT2 fuzzy controller through data-driven techniques;
• Optimize the IT2 fuzzy controller through machine learning techniques;

• Applications of IT2 FMB control strategy to unmanned aerial vehicles;

• Applications of IT2 FMB control strategy to robotics.

More details and a link to submit can be found on the journal homepage: www.tandfonline.com/tsys

4.18. CFP: Nonlinear Analysis: Hybrid Systems
   Contributed by: Kai Cai, kai.cai@eng.osaka-cu.ac.jp

CFP: Nonlinear Analysis: Hybrid Systems
Special Issue: "Security, Privacy and Safety of Cyber-Physical Systems"

Guest Editors: Kai Cai, Osaka City University (kai.cai@eng.osaka-cu.ac.jp)
Maria Prandini, Politecnico di Milano (prandini@elet.polimi.it)
Xiang Yin, Shanghai Jiao Tong University (yinxiang@sjtu.edu.cn)
Majid Zamani, University of Colorado Boulder (Majid.Zamani@colorado.edu)

Cyber-physical systems are engineered systems that are built from and depend upon the synergy of computational and physical components. They are pervasive in today's technological society. Cyber-physical systems usually involve complex interactions of continuous dynamics with discrete logic, referred to as "hybrid" behavior. The development of controller design and verification algorithms for such complex systems are crucial and challenging tasks, due in particular to the theoretical difficulties of analyzing hybrid behavior and to the computational challenges associated with the synthesis of hybrid controllers.

Ever-increasing demands for safety, privacy, security and certification of cyber-physical systems put stringent constraints on their analysis and design, and necessitate the use of formal model-based approaches. In recent years, we have witnessed a substantial increase in the use of formal techniques for the verification and design of privacy-sensitive, safety-critical cyber-physical systems.

The main objective of this special issue to gather recently developed novel approaches devoted to analysis and enforcement of security, privacy and safety of cyber-physical systems using formal techniques. We seek submissions including but not limited to the following topics:
– Security and privacy analysis of cyber-physical systems, including opacity, differential privacy, noninterference and other related notions
– Fault diagnosis, intrusion detection, and attack mitigation of cyber-physical systems
– Supervisory control for safety of discrete-event systems
–Formal methods and reactive synthesis for safety of cyber-physical systems
– Data-driven verification and synthesis of cyber-physical systems
– Distributed approaches for large scale cyber-physical systems and hybrid systems
– Algorithms and tools for verification and synthesis of safety-critical systems
– Applications in security and/or safety of manufacturing systems, transportation systems, energy systems, robotic networks, telecommunications, and computer networks.

Important Submission Dates:
– Open: October 1, 2020

– Due: December 31, 2020

Manuscript should be submitted to https://ees.elsevier.com/nahs

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

Call for Papers: The Second Edition of Focused Section on TMECH/AIM Emerging Topics

Submissions are called for the Second Edition of Focused Section (FS) on TMECH/AIM Emerging Topics (renamed from previous TMECH/AIM Concurrent Submission). This Focused Section is intended to expedite publication of novel and significant research results, technology and/or conceptual breakthrough of emerging topics within the scopes of TMECH (www.ieee-asme-mechatronics.org). It also provides the rapid access to the state-of-the-art of TMECH publications within the mechatronics community. Note that the First Edition of Focused Section on TMECH/AIM Emerging Topics was already published in August 2020.

The submitted paper must not exceed 8 TMECH published manuscript pages, excluding photos and bios of authors, and will be subject to a normal peer review process in the standard of TMECH. All accepted papers from submissions to the Focused Section will be published in August Issue of TMECH in 2021 and will be presented in the 2021 IEEE/ASME International Conference on AIM. The rejected papers from submissions will be transferred to the Program Committee of AIM 2021 to be further reviewed and considered as contributed conference papers.

The review process for submissions to the Focused Section will be conducted with one round of Major/Minor Revision allowed, and the final decision falls into one of the following two categories:

- Accept for publication in Focused Section. In this case, the paper will be accepted by AIM 2021 concurrently for presentation only with full information of the paper to be included in the preprinted proceeding of AIM 2021. The final publication in TMECH, however, will be subject to the completion of presentation in AIM 2021 with paid full registration fee.
- Reject for publication in Focused Section (in the first and second round). In this case, the paper, as well as all review comments, will be forwarded to the Program Committee of AIM 2021 for further consideration. A final Accept/Reject decision will then be made by the Committee as a contributed conference paper for AIM 2021.

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

Manuscript submission: Manuscripts should be submitted to TMECH online at: mc.manuscriptcentral.com/tmech-ieee, selecting the track 'TMECH/AIM Emerging Topics'. The cover letter should include the following statement: This paper is submitted to the Second Edition of Focused Section on TMECH/AIM Emerging Topics. The full information of the paper should be submitted concurrently to AIM 2021 online at: ras.papercept.net/conferences/scripts/start.pl., noted with the given TMECH manuscript number.

Submission/Review/Decision Timeline (tentative):

Opening Date of TMECH/AIM FS Submission Site (first submission): November 1, 2020
Closing Date of TMECH/AIM FS Submission Site (first submission): December 5, 2020
Full Information of TMECH/AIM FS Paper Submitted to AIM Site: December 5, 2020
First Decision for TMECH/AIM FS Submission: March 1, 2021
Revised TMECH/AIM FS Submission Due by: March 26, 2021
Final Decision for TMECH/AIM FS Submission: May 1, 2021
Final Version of TMECH/AIM FS Submission Due by: May 15, 2021
Publication of Focused Section in TMECH: August 2021

Contacts: Send enquiries about this Announcement to
Xiang Chen, xchen@uwindsor.ca, Senior Editor of TMECH
Bram Vanderborght, Bram.Vanderborght@vub.be, Program co-Chair of AIM

4.20. CFP: SIAM Journal on Control and Optimization
Contributed by: Francesco Bullo, bullo@ucsb.edu

Extended deadline: Call for Papers: SIAM Journal on Control and Optimization Special Section on Mathematical Modeling, Analysis, and Control of Epidemics

As announced previously, the SIAM Journal on Control and Optimization (SICON) plans a Special Section to bring together contributions at the intersection of the fields of systems and control theory and the mathematical study of epidemic spread processes. We envision submissions related to COVID-19, but we additionally encourage general topics associated with epidemic processes.

Submissions will be now accepted until November 1, 2020.

The ongoing COVID-19 pandemic has brought to the spotlight the critical importance and danger of complex epidemic processes. The intent of the section is to gather recent developments aimed at addressing the fundamental challenges inherent in the mathematical analysis, estimation, and control of epidemics. Specific topics addressed in the section include (but are not limited to):

- Mathematical modeling and analysis methods, including ordinary and partial differential equations as well as deterministic and stochastic systems
- Closed-loop control design strategies, including triggers for enforcing and relaxing non-pharmaceutical intervention strategies
- Optimization algorithms for intervention scheduling and resource allocation,
- Computational methods for stochastic simulation
- Learning methods for early tracking, identification, inference, and data-driven analysis.

All interested should submit a manuscript and cover letter in PDF format via SICON's online submission site: https://sicon.siam.org. Note the block labeled Special Section (just under the keywords block on your

submission screen). From the dropdown select " Mathematical Modeling, Analysis, and Control of Epidemics."

If you have any questions, contact Mitch Chernoff, SIAM Publications Manager, at chernoff@siam.org, or Brian Fauth, Editorial Associate, at sicon@siam.org. Questions about suitability of content can be directed to Francesco Bullo, guest editor-in-charge, at bullo@engineering.ucsb.edu.

Guest Editors:
- Carolyn Beck, University of Illinois, Urbana-Champaign
- Francesco Bullo, University of California, Santa Barbara
- Giacomo Como, Politecnico di Torino
- Kimon Drakopoulos, University of Southern California
- Dang H. Nguyen, University of Alabama
- Cameron Nowzari, George Mason University
- Victor M. Preciado, University of Pennsylvania
- Shreyas Sundaram, Purdue University

4.21. CFP: IEEE Vehicular Technology Magazine Special Issue
Contributed by: Ricardo de Castro, Ricardo.deCastro@dlr.de

CFP: Recent Advances in Motion Control, Estimation and Diagnosis for Automated Vehicles: IEEE Vehicular Technology Magazine

The vehicle of the future is expected to be automated. High levels of vehicle automation are seen as enabling technologies to improve road safety–more than 90% of today's car crashes are still due to human errors–road utilization and reduce air pollutant emissions. However, to make this happen, research communities still need to address several challenges. Vehicle automation requires information about the surrounding environment, road conditions and vehicle states, which is difficult to accurately sense. This uncertain information creates challenges for safe and reliable decision making and control of the vehicle, as well as for testing and validation. Additionally, with the increase in vehicle automation the rate of utilization is expected to grow significantly – think of self-driving taxis or trucks operating 24/7. This will raise the vehicle's reliability demands, requiring timely diagnosis of faults, as well as effective mitigation strategies for fault-tolerant operation. This Special Issue encourages researchers working in this field to share their latest developments on control, estimation and diagnosis functions relevant for vehicle automation.

The topics of interest include, but are not limited to:

• Motion control algorithms, including advanced control and decision-making strategies for longitudinal, lateral and vertical vehicle dynamics
• Frameworks for road state estimation, such as road height irregularities, slope, bank angle or grip levels between tyre and road, which are instrumental to autonomously operative vehicles at the limit of adhesion, as well as vehicle and tires state estimation, including position, velocity and orientation
• Diagnosis and fault estimation of safety-critical vehicular sub-systems, actuators and sensors, as well as digital twins to support and improve lifetime diagnosis functions

• Distributed electrical propulsion architectures, e.g. with in-wheel motors and by-wire actuation, as a mean to enhance vehicle controllability and fault-tolerance operation

• Exploitation of connectivity with other vehicles and infrastructure in the design of vehicular control and estimation functions

• Modelling and simulation methods to accelerate and improve the development of vehicle automation functions, including virtual and experimental testing techniques and implementations in embedded systems

• Standardization opportunities in vehicle automation, including analysis of existing standards and discussion of future standardization needs, such as safety metrics of automated vehicles

• Application use cases in road and off-road vehicles, e-bikes, motorcycles, buses, trucks, etc

All manuscripts should contain state-of-the-art material presented in a tutorial or survey style, and must adhere to IEEE VTM guidelines. Manuscript should be submitted to
http://www.ieeevtc.org/vtmagazine/specisu–AutomatedVehicles.php

Important Submission Dates:

– Open: September 15, 2020
– Due: November 15, 2020

Guest Editors

- Dr. Ricardo de Castro, German Aerospace Center (DLR), Germany
- Prof. Basilio Lenzo, Sheffield Hallam University, United Kingdom
- Prof. Yan Chen, Arizona State University, USA
- Dr. Shaobing Xu, University of Michigan, Ann Arbor, USA
- Prof. Shengbo Eben Li, Tsinghua University, China

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4.22. CFP: IEEE/ASME Transactions on Mechatronics
Contributed by: C.C. Cheah, ecccheah@ntu.edu.sg

IEEE/ASME Transactions on Mechatronics
Focused Section on Mechatronics and Automation for Constructions

Rapid advances in modern technologies have completely revolutionized many industries in recent years. It is anticipated that mechatronic and automation technologies would play an important role in transforming the construction industry to embrace for the fourth industrial revolution. However, construction automation problems bring up new research challenges that diverge from traditional methods. Unlike the factory environment, which is typically structured and predictable, construction sites are dynamic places where the working environment is unstructured and always changing. Due to lack of skilled labour, time and cost overruns, quality deficiencies and the recent pandemics, mechatronic and automated technologies offer solutions for future safe, rapid, performative, prize worthy and digitally protocolled construction projects.

The coexistence of human workers, heavy vehicles, varying environmental conditions and automated mechatronic systems also make safe human-machine interaction an important issue. Beyond expertise in a specific discipline, construction automation also requires multidisciplinary expertise to integrate with various fields, such as Internet of Things (IOT), robotics and its construction oriented subsystems, adaptive/robust control, machine vision, sensing technologies, artificial intelligence, and Building, Construction, Process Information Modelling (BIM/CIM/PIM) for automated construction process management and design. The main aims of this focused section in IEEE/ASME Transactions on Mechatronics (TMECH) are to document the current state of art in mechatronics and automation for constructions, and to present new results in several emerging research areas. Submissions can address theoretical aspects in these areas but approaches or technologies that consider aspects such as market needs, innovation management, and the requirements for industry-level diffusion or deployment are encouraged. The topics of interest within the scope of this focused section include but not limited to:

• Mechatronic systems for construction automation
• Artificial Intelligence for automated/mechatronic construction engineering
• Real time Localization and Navigation in automated/mechatronic construction environment
• Human-machine interaction and control
• Information based (BIM, CIM, PIM) techniques for construction automation/mechatronics
• Automated/mechatronic methods and systems in unstructured environment
• Mechatronics in additive construction

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/

Manuscript submission: Manuscripts should be submitted online at: https://mc.manuscriptcentral.com/tmech-ieee. Please indicate in the cover letter that your paper is for possible publication in the Focused Section on Mechatronics and Automation for Constructions. All manuscripts will be subjected to the regular TMECH peer review process. Any questions relating to this focused section can be sent to any of the Guest Editors via emails.

Important dates:
Paper Submission January 1, 2021
Completion of First Review April 1, 2021
Submission of Revised Papers May 15, 2021
Completion of Final Review July 15, 2021
Submission of Final Manuscripts and Copyright Forms August 31, 2021
Publication October, 2021

Guest Editorial Board:
- Chien Chern Cheah (Lead Guest Editor), Nanyang Technological University, Email: ecccheah@ntu.edu.sg
- Thomas Bock (Co-Lead Guest Editor), Technical University of Munich, Email: thomas.bock@br2.ar.tum.de
- Jianfu Cao (Guest Editor), Xian Jiaotong University, Email: cjf@mail.xjtu.edu.cn
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- Li Man Yang (Guest Editor), Beijing University of Aeronautics and Astronautics, Email: ylm@buaa.edu.cn

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

Asian Journal of Control
Special Issue on "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:
Prof. Michael Basin
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Prof. Peng Shi
Universiry of Adelaide, Australia
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Important Dates:
September 15, 2020 Deadline for Submissions
November 15, 2020 Completion of First Review
January 15, 2021 Completion of Final Review
January 31, 2021 Receipt of Final Manuscript
March 31, 2021 (Tentatively Vol. 23, No. 2) Publication

Special Issue on "Analysis and Control of Complex Cyber-Physical Networks"

A large number of coupled systems in nature and society can be modeled by complex cyber-physical networks, whose normal functioning significantly relies on the tight interactions between its physical and cyber components. Many modern critical infrastructures can be appropriately modelled as complex cyber-physical networks. Typical examples of such infrastructures are power grids, the Internet, WWW, and public transportation systems. The ubiquity of such networked systems leads to many important and fascinating scientific problems concerning how network topologies and parameters affect collective dynamics, and how to control them. Analysis and control of complex cyber-physical networks have received a lot of attention recently, from various scientific and engineering communities. Furthermore, revealing the fundamental properties and controlling the collective behaviors of networked systems not only can provide a better understanding of the emergence mechanisms for cooperative behaviors, but also can provide benefits to various applications of cyber-physical networked systems, such as smart grids, Internet of Things and unmanned aircraft systems.

The focus of this special issue is on new approaches to analysis and synthesis of complex cyber-physical networks as well as their potential practical applications. The special issue aims to establish a forum for international researchers from different fields of electrical engineering, bioinformatics, systems and control theory, and applied mathematics, to present and evaluate the most recent developments and new ideas on analysis and synthesis of complex cyber-physical networks, regarding both fundamental theory and practical applications.

The topics to be covered include, but are not limited to:
– Analysis and coordination control of complex cyber-physical networks
– Bio-inspired control techniques for networked systems
– Big-data mining and analysis over complex cyber-physical networks
– Controllability and observability of complex cyber-physical networks
– Distributed cognitive architectures in robotic networks
– Distributed control and estimation of multi-agent networks
– Distributed optimization of multi-agent networks
– Deep learning and intelligent control of complex cyber-physical networks

– Distributed machine learning in complex cyber-physical networks

– Distributed reinforcement learning techniques for networked systems

– Energy management and distributed intelligent control of smart grids

– Efficient privacy protection and security of complex cyber-physical networks

– Efficient privacy protection and security of complex cyber-physical networks

– Finite-time and fixed-time control of complex cyber-physical networks

– Game analysis and control over complex cyber-physical networks

Guest Editors:

Prof. Guanghui Wen
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Prof. Guanrong Chen
Department of Electrical Engineering, City University of Hong Kong, China
eegchen@cityu.edu.hk

Important Dates:
November 30, 2020 Deadline for Submissions
February 28, 2021 Completion of First Review
May 31, 2021 Completion of Final Review
August 31, 2021 Receipt of Final Manuscript
January 31, 2021 (Tentatively Vol. 24, No. 1) Publication

5 Conferences and Workshops

5.1. ACM Conference on Hybrid Systems: Computation and Control, USA
Contributed by: Guillaume Berger, guillaume.berger@uclouvain.be

ACM HSCC 2021 Call for Papers
24th ACM International Conference on Hybrid Systems: Computation and Control (HSCC 2021)
Part of CPS-IoT Week 2021
May 19-21, 2021
Nashville, Tennessee, USA
URL: https://hscc.acm.org/2021/

Hybrid Systems: Computation and Control (HSCC) 2021 is the 24th in a series of conferences focusing on original research on concepts, tools, and techniques from computer science, control theory, and applied mathematics for the analysis and control of hybrid dynamical systems, with an emphasis on computational aspects. By drawing on strategies from computation and control, the hybrid systems field offers techniques that are applicable to both man-made cyber-physical systems (ranging from small robots to global infrastructure networks) and natural systems (ranging from biochemical networks to physiological models). Papers in the conference are expected to range over a wide spectrum of topics from theoretical results to practical considerations, and from academic research to industrial adoption.

Topics of interest include, but are not limited to:
- Mathematical foundations, computability and complexity
- Analysis, verification, validation, and testing
- Modeling paradigms and techniques
- Design, synthesis, planning, and control
- Programming and specification languages
- Network science and network-based control
- Security, privacy, and resilience for cyber-physical systems with focus on computation and control
- Safe autonomy, Artificial intelligence and Machine learning in CPS
- Software tools for the above topics
- Applications and industrial case studies in: automotive, transportation, autonomous systems, avionics, energy and power, robotics, medical devices, manufacturing, systems and synthetic biology, models for the life sciences, and other related areas.

Two special areas: Similarly to last year, HSCC invites submissions exploring synergies with artificial intelligence as part of a special session "Safe and trustworthy AI". In addition, the conference will feature a special session on "Systems biology and epidemiology" which aims at addressing the challenges that emerged with COVID-19.

Submission Guidelines: *New this year*: HSCC invites submissions in two categories: (1) regular papers and (2) tool and case study papers. Submissions in *both* of these categories can be either long (10 pages max, 9pt font, two-column ACM format) or short papers (6 pages max, 9pt font, two-column ACM format). We will employ a double blind reviewing process and will have a rebuttal phase to provide authors the opportunity to reply to reviewer concerns. Authors are asked to submit their paper using EasyChair:

https://easychair.org/conferences/?conf=hscc2021.

Important dates

Submission deadline: *October 26, 2020 (AOE)*
Tool/case study paper repeatability package submission deadline: November 1, 2020 (AOE)
Rebuttal phase: Beginning of December 2020 (tentative)
Acceptance/rejection notifications: December 2020 (tentative)
Posters/demos submission deadline: January 2021 (tentative)

Organization

PC Chairs:
Sergiy Bogomolov (Newcastle University, UK)
Raphaël Jungers (UCLouvain, Belgium)

Repeatability Evaluation Chairs:
Stanley Bak (Stony Brook University, USA)
Bardh Hoxha (Toyota Research Institute of North America, USA)

Publication Chair:
Nikos Athanasopoulos (Queen's University Belfast, UK)

Publicity Chair:
Dorsa Sadigh (Stanford University, USA)

Demo/Poster Chair:
Jana Tumova (KTH, Sweden)

Awards Chair:
Antoine Girard (L2S-CNRS, Paris)

Steering Committee:
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Radu Grosu (TU Wien, Austria)
Sayan Mitra (UIUC, USA)
Paulo Tabuada (UCLA, USA)
Claire Tomlin (University of California, Berkeley, USA)

5.2. International Conference on Process Control, Slovakia
Contributed by: Martin Klaučo, martin.klauco@stuba.sk

23rd International Conference on Process Control

Institute of Information Engineering, Automation, and Mathematics (www.uiam.sk) at Slovak University of Technology in Bratislava would like to cordially invite you to the 23rd International Conference on Process Control. The conference will be held in Strbske Pleso, High Tatras (Slovakia), between June 1 and 4, 2021.

The conference is technically co-sponsored by the IEEE Control Systems Society Czechoslovakia Section Chapter. Accepted papers will be submitted to IEEE Xplore (indexed in WoS and Scopus).

Please visit this website anytime for up-to-date information: https://www.process-control.sk/

The objective of the conference is to bring together theory experts and control systems practitioners, to evaluate the new avenues for techniques, design procedures and instruments in process control. The conference will feature plenary and keynotes lectures, standard parallel sessions, poster session, a dedicated workshop, and rich social program. Contributions are invited to range from theoretically rigorous research works to industrial applications.

Topics include:

1. Linear and Nonlinear Control
(Area Chair: M. Hovd (NO))
Linear and Non-linear Control System Design
Robust and Adaptive Control
Control Education

2. Optimization and Computing in Control
(Area Chair: B. Houska (CN))
Modelling, Simulation, and Identification of Processes Process Optimisation Model Predictive Control

3. Machine Learning and Control
(Area Chair: S. Lucia (DE))
Machine Learning
Intelligent Control Systems
Algorithms and Computing

4. Sustainable Industrial Production and Applications
(Area Chair: T. Haniš (CZ))
Industrial Automation
Process Measurements and Devices
Applications and Case Studies

PLENARY SPEAKERS

C. de Prada (University of Valladolid, Spain) more speakers to be confirmed

WORKSHOP

Antonio del Rio Chanona (Imperial College London, UK)

Panagiotis Petsagkourakis (University College London, UK)

Machine Learning for Process Control and Optimization

IMPORTANT DATES

December 15, 2020 Submission of full papers

March 11, 2021 Notification of acceptance

April 6, 2021 End of early registration / Final paper submission

June 1 - 4, 2021 Conference

The conference accepts two types of submissions – full papers and abstract-only contributions. For full papers, authors have the option to select a preference for presentation format (talk or poster), although the organizers will make a final decision based on an effective overall programme design. Accepted full papers will be submitted to the IEEEXplore website (indexed in WoS and Scopus). Abstract-only submissions are ideal for presenting preliminary results or sharing ideas. Please note that abstract-only submissions will only appear in the book of abstracts (with ISBN), and will NOT be submitted to IEEEXplore.

We plan several awards for the best contributions. These will include

1. Best paper award

2. Award for best paper by young author

3. Award for best paper by female researcher

4. Best poster award

You can join us now in creating a lively spirit of the conference. We hereby invite you to vote for the design of the conference bag and the T-shirt by selecting your favourite motto and formula. Please, proceed to the following Google form that can be filled out in a minute:

https://forms.gle/Nyk3TdB1ZJEsfJHB8

Please fill out the form until December 15, 2020.

The conference is also visible on social media. We would be happy if you would consider to follow us on Facebook page https://www.facebook.com/conference.process.control to keep in touch with the most recent information.

COVID-19: Based on the successful fight against the pandemic in the Spring 2020 in the Eastern Europe, we are positive on being able to organize the conference with a fully personal presence of the participants. Should the situation not allow this, we are ready to adapt to a necessary format.

Contact: For more information, visit https://www.process-control.sk/ or write to

1. e-mail: pc21@process-control.sk

2. Institute of Information Engineering, Automation, and Mathematics

Slovak University of Technology in Bratislava
Radlinskeho 9, 812 37 Bratislava, Slovak Republic
phone: (+421) (2) 59325345
Radoslav Paulen (IPC Chairman), Martin Klaučo (NOC Chairman)

5.3. IEEE International Conference on Communications, Canada
Contributed by: György Dán, gyuri@kth.se

IEEE International Conference on Communications (ICC 2021)
Montreal, QC, Canada
Symposium on Selected Areas in Communications Smart Grid Communications Track
(SAC SGC Track)
https://bit.ly/3mDcBYA
June 14-18, 2021

Scope and Motivation: The Smart Grid Communications Track of the Selected Areas in Communications Symposium will focus on all aspects of information and communication technologies enabling the increased automation of electric power systems, with the objective of making electricity generation, transmission and distribution more sustainable. The track welcomes original and innovative research work in technical areas spanning communications, control, computing, power electronics, and power systems, as well as novel results from implementation studies.

Topics of Interest:
The Smart Grid Communications Track seeks original contributions in topical areas including but not limited to:
- Machine learning, data analytics and management for smart grid control and communication
- Cross-layer design and optimization techniques applied to smart grid systems
- Cyber-physical modelling and analysis of smart grid systems
- Cybersecurity, privacy and cyber-physical security
- Demand side management and demand response
- Distributed management and control of micro-grids
- Smart metering infrastructure
- Edge/fog/cloud computing for smart grid analytics and control
- Integration of renewables, storage and electric vehicles into smart grids
- Measurements, experimental testbeds and field trials
- IoT, V2G, G2V and machine-to machine communications for smart grids
- Network architectures and device placement for supporting smart grid communications
- Physical, link and network layer protocols and resource management in smart grids
- Wireless power transfer and energy harvesting techniques for smart grid communications
- Regulation, standardization, and smart grid economics

Important Dates:
Paper Submission (extended deadline): 30 October 2020 (Firm)
Notification: 25 January 2021

Camera Ready and Registration: 22 February 2021

How to Submit a Paper: All papers for technical symposia should be submitted via EDAS. Instructions on how to submit papers are provided on the IEEE ICC 2021 website: https://icc2021.ieee-icc.org/

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

Call-for-Papers: 2021 International Conference on Unmanned Aircraft Systems (ICUAS'21), Athens, Greece, June 15-18, 2021
`www.uasconferences.com/2021_icuas/`

On behalf of the Organizing Committee and the ICUAS Association, it is our pleasure to invite you to contribute to and participate in the 2021 International Conference on Unmanned Aircraft Systems, ICUAS'21, which will be held, again, in Athens, Greece. The conference venue is the luxurious Divani Caravel Hotel, http://divanicaravelhotel.com. This decision was reached by 'popular demand' as most registered participants in ICUAS'20 were not able to travel to Greece due to COVID-19. Athens is a metropolitan/cosmopolitan city, the capital of Greece, the birthplace of Democracy, and the home to the world-renowned Acropolis and Parthenon – a city where visitors can walk safely and enjoy the rich, almost 5,000-year-old history it has to offer.

The major themes of ICUAS '21 are: AI and autonomy for UAS/RPAS, UAS/RPAS design for safety, reliability and resilience, unmanned – manned swarms, aerial manipulation, and technology standards, all contributing to building high-confidence systems. National and international organizations, agencies, industry and authorities work towards defining roadmaps of UAS/RPAS expectations, technical requirements and standards that are prerequisite to their full utilization. The next generation of UAS/RPAS will be used for a wide spectrum of civilian and public domain applications. Challenges to be overcome include the topics of interest listed below. Innovative solutions to these challenges will pave the way towards full integration of UAS/RPAS with manned aviation and into the national airspace.

ICUAS '21 aims to bring together different groups of qualified representatives worldwide, funding agencies, industry and academia, to discuss the current state of unmanned aviation advances, and the roadmap to their full utilization in civilian and public domains. Special emphasis will be given to research opportunities, and to 'what comes next' in terms of the essential technologies that need to be utilized to advance the state-of-the-art.

Conference topics include (but not limited to):
. Airspace Control . Integration . See/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)

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

IMPORTANT DATES (Please check the latest information at http://www.uasconferences.com)
February 15, 2021: Full Papers/ Invited Papers/Tutorial Proposals Due
April 15, 2021: Acceptance/Rejection Notification
May 10, 2021: Upload Final, Camera Ready Papers; Early Registration Deadline

PAPER SUBMISSION: Paper format should follow IEEE guidelines, and electronic submission will be handled through PaperCept - details are available on the conference web site. Submitted papers should be classified as Contributed or Invited Session (max. 10 pages), or Poster (max. 6 pages) papers. Accepted, contributed and invited session papers only, will be allowed up to two additional pages for a charge of $100 per additional page. Poster papers should be aimed at novel and cutting-edge ideas with potential, however, not yet fully developed.

Invited Sessions: Proposals must be submitted and uploaded electronically. A Summary Statement describing the motivation and relevance of the proposed session, paper titles and author names must be uploaded electronically by due date. Authors must also submit full versions of invited papers electronically, marked as Invited Session Paper.

Workshops/Tutorials: Proposals for workshops/tutorials should contain title, the list of speakers, and extended summaries (2000 words) of their presentations. Proposals must be sent by e-mail to the Tutorial/ Workshop Chair by due date.

Welcome and look forward to receiving your contributions and attendance to the ICUAS'21! For detailed information please see www.uasconferences.com.

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5.5. IFAC Conference on Analysis and Design of Hybrid Systems, Belgium
   Contributed by: Guillaume Berger, guillaume.berger@uclouvain.be

ADHS 2021 Second Call for Papers
The 7th IFAC Conference on Analysis and Design of Hybrid Systems
Brussels, Belgium, July 7-9, 2021.
Website: https://sites.uclouvain.be/adhs21/

* Invited Session Proposals due: December 16, 2020
* Paper Submissions due: December 23, 2020
* Author notification: mid-February, 2021

The Organising Committee has the pleasure of inviting you to participate in the 7th IFAC Conference on Analysis and Design of Hybrid Systems (ADHS 21) to be held in Brussels, Belgium, July 7-9, 2021.

ADHS 2021 will take place at the University Foundation, Brussels and is organized by the department of Applied Mathematics of UCLouvain. Virtual attendance will be possible, and the extent of this possibility will be adapted to the situation of the pandemia. The conference happens under the auspices of IFAC and is sponsored by the IFAC Technical Committee on Discrete Event and Hybrid Systems.

Contributions are invited in all areas pertaining to the engineering of hybrid systems including: modelling, specification, verification, analysis, control synthesis, simulation, validation, and implementation. We solicit papers and invited session proposals describing theoretical or applied research in the area. We also welcome papers describing tools, reporting case studies or connecting the cognate fields of control theory and formal verification.

Contributions are encouraged on applications of hybrid methods in various fields, such as automotive, avionics, energy and power, mobile and autonomous robotics, the process and manufacture industry, transportation and infrastructure networks, communication networks and networked control systems, cyberphysical systems, safety-critical systems, systems and synthetic biology.

A poster session will be organized and IFAC Young Author, Best Paper, Best Repeatability and Best Poster Prizes will be awarded.

The Program Chairs are planning to edit a special issue of NAHS: the authors of selected papers will be invited to contribute with significantly revised and extended versions of their manuscripts, containing new results.

Author Guidelines

* Regular papers: Regular papers can have a length of up to 8 pages at submission. Accepted papers are limited to 6 pages in the conference preprints and on-line proceedings.

* Invited session proposals: Invited sessions consist of 4 to 6 papers related to a common theme that fits within the scope of ADHS. An invited session proposal should contain a short description of the common theme as well as the list of papers in the session and their abstracts. The invited session organiser first has to submit the pdf file of the session proposal (without participating papers). The IFAC Conference Manuscript Management System then returns an acknowledgment that contains an alpha-numeric code for the proposed session. Subsequently, the organiser has to notify the contributing authors of their invited session code. The corresponding author of each paper then submits the paper on-line as an invited paper.

* Invited session papers: Invited session papers can have a length of up to 8 pages at submission. Invited session papers go through the same review process as regular papers. Accepted papers are limited to 6 pages in the conference preprints and on-line proceedings. Submission as an invited session paper requires the invited session code, which can be obtained from the session organiser.

Submission Instructions
* The website for submission is: https://ifac.papercept.net/conferences/scripts/start.pl
* All papers submitted to ADHS 21 must be written in English and formatted in the standard IFAC 2-column format, provided on the IFAC Conference Management System website.
* For initial submissions, all regular and invited session papers are limited to eight (8) pages. The submission website will not permit longer papers to be uploaded.
* For the final upload, all accepted and invited papers are limited to six (6) pages.
* For each accepted paper, at least one of the authors should have a full registration in order to have the paper included in the preprints and the post-conference on-line proceedings at IFAC-PapersOnLine.
* Author's kits with style (.cls) files for LaTeX are available from the submission website.
Go to http://ifac.papercept.net and select "Support" for these files and example files, or directly go to the support page. Please do not change the formatting in any way.

Important Dates
- Invited Session Proposals due: December 16, 2020
- Paper Submissions due: December 23, 2020
- Author notification: mid-February, 2021
- Final papers due: TBA
- Early registration: TBA
- Conference: July 7-9, 2021

The reference timezone is Central European Summer Time.

Invited Speakers
* Paulo Tabuada (University of California, Los Angeles, USA)
* Verena Wolf (Saarland University, Germany)
* Claire Tomlin (University of California, Berkeley, USA)

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All publication material submitted for presentation at an IFAC-sponsored meeting (Congress, Symposium, Conference, Workshop) must be original and hence cannot be already published, nor can it be under review elsewhere. The authors take responsibility for the material that has been submitted. IFAC-sponsored conferences will abide by the highest standard of ethical behavior in the review process as explained on the Elsevier webpage (https://www.elsevier.com/authors/journal-authors/policies-and-ethics), and the authors will abide by the IFAC publication ethics guidelines (https://www.ifac-control.org/events/organizers-guide/PublicationEthicsGuidelines.pdf/view).

Accepted papers that have been presented at an IFAC meeting will be published in the proceedings of the event using the open-access IFAC-PapersOnLine series hosted on ScienceDirect (https://sciencedirect.com/). To this end, the author(s) must grant exclusive publishing rights to IFAC under a Creative Commons license when they submit the final version of the paper.

The copyright belongs to the authors, who have the right to share the paper in the same terms allowed by the end user license, and retain all patent, trademark and other intellectual property rights (including research data).

5.6. Mediterranean Conference on Control and Automation, Italy
Contributed by: Graziana Cavone, graziana.cavone@poliba.it

29th Mediterranean Conference on Control and Automation (MED'21)
Title of the conference: MED 2021 - 29th Mediterranean Conference on Control and Automation
General Chair: Prof. Mariagrazia Dotoli
General Co-Chair: Prof. Laura Giarrè
Program Chairs: Prof. Laura Giarrè and Prof. Elisa Franco
Conference dates: June 22-25, 2021
Location of the conference: The Nicolaus Hotel; Via C.A. Ciasca, 27, Bari, Puglia, Italy.
Conference website: www.med2021.poliba.it

5.7. Conference on Learning for Dynamics and Control 2021, Switzerland
Contributed by: Melanie Zeilinger, mzeilinger@ethz.ch

Call for Papers: 3rd Annual Conference on Learning for Dynamics and Control, L4DC 2021
ETH Zurich, Switzerland, June 7-8, 2021
Submission Deadline: November 13, 2020
http://l4dc.org

On behalf of the Organizing Committee, it is our pleasure to invite you to contribute to and participate in the 2021 Conference on Learning for Dynamics and Control, which will take place in Zurich, Switzerland,

June 7-8, 2021.

L4DC is an interdisciplinary venue for researchers at the intersection of machine learning, control, system theory, optimization and related areas. It has been launched in 2019 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.

In addition to a series of invited talks, we again invite submissions of short papers. The deadline for paper submission is November 13, 2020.
Please find more information below or on the website: l4dc.org .
We look forward to meeting you at L4DC 2021 in Zurich!

Ben Recht, Claire Tomlin, Ali Jadbabaie, George Pappas, Pablo Parrilo, John Lygeros, Melanie Zeilinger (Organizers L4DC 2021)

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 oral talks. At least one of each paper's authors should 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.

5.8. IEEE SmartGridComm 2020, Virtual
Contributed by: Anuradha Annaswamy, aanna@mit.edu

The 11th IEEE International Conference on Communications, Control, and Computing Technologies for Smart Grids (SmartGridComm 2020)
11-13 November 2020
Venue: VIRTUAL
Conference link: https://sgc2020.ieee-smartgridcomm.org/
Registration link: https://sgc2020.ieee-smartgridcomm.org/registration

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5.9. IEEE International Conference on Industrial Cyber-Physical Systems, Canada
Contributed by: Ahmad W. Al-Dabbagh, ahmad.aldabbagh@ubc.ca

The 4th IEEE International Conference on Industrial Cyber-Physical Systems (ICPS), May 10 - 13, 2021, Victoria, British Columbia, Canada

http://ieee-icps2021.org

Special Session Proposals: November 15, 2020
Full Paper Submission: December 15, 2020
Notification of Acceptance: February 15, 2021
Submission of Final Manuscript: March 15, 2021
Early Bird Registration: March 15, 2021

ICPS 2021 is a majority sponsored conference by the IEEE Industrial Electronics Society. ICPS 2021 is to provide a forum to exchange research and innovation results, lessons learned from industrial practices, such as Cyber-Physical Systems, Digital Economy, the Industrial-Internet-of-Things and so on. The ICPS annually gathers together Industry experts, researchers and academics to share ideas, paradigms and experiences surrounding frontier technologies, breakthroughs, innovative solutions, research results, as well as initiatives related to cyber-physical systems and their applications.

Topics within the scope of the conference:
- ICPS Architectures: Industry Architectures, Industry Standards, RAMI 4.0, Industrial IoT
- ICPS Theory and Technologies: Core Technologies, Interoperability, Communication Networks, Connectivity OT/IT, Semantics, Control, Information Processing, Security, IoT/IoS, Machine Learning, Autonomous Systems, Cloud-Fog Computing, Big/Smart Data, Security
- ICPS Engineering: Engineering Methods and Tools, Lifecycle Management, Integration, HMI, Safety, Engineering Systems of ICPS
- ICPS Applications: Smart Manufacturing, Robotics, Smart Cities, Energy/Smart Grid, Smart Living, Smart Framing, Mobility, Water Management, Mining, Oil & Gas, Intelligent Enterprise, Smart Transportation, Internet of Underwater Things, Smart Medical System
- ICPS Management and Ecosystems: Innovation Management, Innovation Ecosystems, Visions/Roadmaps, Industry Digitalization, Strategies & Markets, Entrepreneurship
- ICPS Education and Social Aspects: Digital Society, Education, Lifelong ICPS Learning, ICPS Curricula, Future of Work, Social Aspects, Sustainability, Machine Ethics

5.10. CDC 2020 Virtual Program, Virtual
Contributed by: Hideaki Ishii, ishii@c.titech.ac.jp

IEEE Conference on Decision and Control, Republic of Korea
59th IEEE Conference on Decision and Control, December 14-18, 2020 Jeju Island, Republic of Korea
http://cdc2020.ieeecss.org
Join us at the first virtual CDC!

The online program can be found at
https://css.paperplaza.net/conferences/conferences/CDC20/program/.

The virtual program will be held over 5 days, with 4.5 hours per day, scheduled to start at 13:00 (1:00 pm) Coordinated Universal Time (UTC), which is one week later than was originally planned. The virtual sessions schedule will comprise 17 parallel tracks including Tutorial Sessions and COVID-19 Focus Sessions. The regular and invited sessions comprise 15-minute slots for the presentation video and the Q&A live session.

Bode Lecture, Plenary and Semi-Plenary Lectures: The Bode Lecture will be presented by Kristin Y. Pettersen, Norwegian University of Science and Technology, Norway. The plenary lecture will be delivered by Stephen P. Boyd, Stanford University, USA. The semi-plenary speakers will be Murat Arcak, University of California, Berkeley, USA; Franco Blanchini, University of Udine, Italy; Shinji Hara, Tokyo Institute of Technology, Japan; and Jonathan P. How, Massachusetts Institute of Technology, USA.

Workshops: A number of pre-conference workshops will be offered on Saturday and Sunday, December 12-13, 2020 during the same hours as the conference:

Two-day Workshops, 1-5 pm UTC, December 12 & 13 (Sat & Sun)

T1. Advanced Battery Management: Recent Advances and Future Innovations
T2. Real time NMPC: From Fundamentals to Industrial Applications
T3. Data-driven Control
T4. Dynamics in Social and Economic Networks
T5. Non-linear and adaptive control: A tribute to Laurent Praly for his 65th birthday

One-day Workshops, 1-5 pm UTC, December 13 (Sun)

O1. Control, Optimization, and Learning Methods for Emerging Mobility Systems
O2. Compressed Sensing and Sparse Representation for Systems and Control
O3. Learning and Security for Multi-Agent Systems

Registration: Currently, conference registration can still be made at much reduced rates than originally planned due to going virtual. The first category includes paper uploads. The second category, newly introduced for the virtual CDC, does not include paper uploads and is available at rates even further reduced. Both categories include access to the virtual venue, electronic proceedings, live sessions, and on-demand presentations. For details, please visit the conference website.

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Program Chairs
Jay H. Lee, KAIST, Republic of Korea
Luca Zaccarian, LAAS-CNRS, France, University of Trento, Italy

5.11. CDC 2020 Workshop: Control and Learning for Mobility Systems, Virtual
Contributed by: Andreas A. Malikopoulos, andreas@udel.edu

Emerging mobility systems, e.g., connected and automated vehicles (CAVs), shared mobility, provide the most intriguing opportunity for enabling users to better monitor transportation network conditions and make better operating decisions to improve safety and reduce pollution, energy consumption, and travel delays. Emerging mobility systems are typical cyber-physical systems where the cyber component (e.g., data and shared information through vehicle-to-vehicle and vehicle-to-infrastructure communication) can aim at optimally controlling the physical entities (e.g., CAVs, non-CAVs). The cyber-physical nature of such systems is associated with significant control challenges and gives rise to a new level of complexity in modeling and control. As we move to increasingly complex emerging mobility systems, new control, optimization, and learning approaches are needed to optimize the impact on system behavior of the interplay between vehicles at different traffic scenarios. It is expected that CAVs will gradually penetrate the market, interact with non-CAVs and contend with vehicle-to-vehicle and vehicle-to-infrastructure communication limitations, e.g., bandwidth, dropouts, errors and/or delays. New system approaches are needed to accommodate the challenges associated with the partial penetration of CAVs and communication limitations.

All information about the workshop including the speakers can be found on the workshop's website:

https://sites.google.com/udel.edu/cdc-workshop-2020/home

5.12. CDC 2020 Workshop: Advanced Battery Management, Virtual
Contributed by: Huazhen Fang, fang@ku.edu

Two-Day Online Workshop on Advanced Battery Management: Recent Advances and Future Innovations
December 12-13, 2020, Sat-Sun, 1-5PM (UTC; Coordinated Universal Time)
Webpage: https://cdc-abm.ku.edu

It is our pleasure to invite you to participate in the workshop on advanced battery management at the upcoming 59th IEEE CDC.

Battery energy storage systems play a key role in moving the world into a clean energy era. Their optimal control and management has attracted considerable research from the systems and control community in the past decade. The growing efforts have led to tremendous progresses while continuously stimulating exciting insights into emerging challenges. This workshop will gather veteran researchers across academia and industry to share up-to-date advances and perspectives about future innovations. It also aims to foster a creative space for open discussions among participants.

The talks will cover various key dimensions of this field, highlighting a confluence of electrochemical modeling, control theory, machine learning and industrial applications. We welcome researchers, graduate

students and professional engineers to join the workshop and gain an exciting exposure to the cutting-edge developments, new trends and open challenges in this field.

Organizers: Huazhen Fang, Xinfan Lin, Scott Moura, and Simona Onori

6 Positions

6.1. PhD: TU Delft, The Netherlands
Contributed by: Matin Jafarian, m.jafarian@tudelft.nl

PhD Position on Neuronal Networks Underlying Learning and Decision-Making: Dynamics and Analysis The Delft Center for Systems and Control (DCSC) of Delft University of Technology (TU Delft), The Netherlands is seeking a qualified candidate for a four-year PhD position within the interdisciplinary research platform consisting of control theory, human cognition and AI domains.

Project description: Understanding the mechanisms of human cognition, e.g. learning and decision-making, is among the key components behind developments of efficient human-in-the-loop algorithms as well as advances in human cognitive health. Cognitive abilities are rooted in the activities of dynamic networks of neurons. A central topic in this domain is to understand the relations between the cognitive functioning and the brain neuronal activities in particular in the light of dynamic changes in neuronal interactions. This project will consider system level modeling and analysis of dynamic neuronal networks whose activities form the underlying mechanisms of learning and decision-making. We will capitalize mainly on the tools from nonlinear and adaptive control theory. Physics-based and data-driven approaches will be employed for the dynamical modeling part. The outcome of this project, in collaboration with cognitive neuroscientists and AI experts, will contribute to mechanistic understandings of human cognition as well as advances in artificial learning algorithms.

What do we ask? We are looking for a candidate with an MSc degree in Systems and Control, Applied Mathematics, Mechanical / Electrical Engineering, Computer Science or a closely related discipline, with a strong background in systems and control and a genuine interest in cognitive science. Familiarity or a background in data-driven techniques/ machine learning is a plus. The candidate is expected to work in an interdisciplinary research on the edge of control theory, cognitive neuroscience, and deep learning/AI. A good command of the English language is required.

What do we offer? We offer the opportunity to do scientifically challenging research in a multi-disciplinary research group. Salary and benefits are in accordance with the Collective Labour Agreement for Dutch Universities, increasing from €2395 per month in the first year to €3061 in the fourth year.

How to apply? The required documents for application include detailed curriculum vitae, an introduction letter indicating their background and motivation (maximum two page long), their BSc and MSc course programs and the corresponding marks, title and abstract of their BSc/MSc thesis, contact information for at least two academic references. Applicants should submit their application, the required documents along with all other information that might be relevant to their application, compiled into a single pdf file called 'TUD00512_YourLastName.pdf', by email to application3mE@tudelft.nl.

The application deadline for the position is November 20, 2020. More information on this position can be obtained from Dr. Matin Jafarian (email: m.jafarian@ tudelft.nl).

6.2. PhD: University of Texas at Arlington, USA
Contributed by: Ali Davoudi, davoudi@uta.edu

PhD positions at the University of Texas at Arlington

We have openings for funded PhD positions for Summer/Fall 2021 semesters. An ideal candidate should hold a master's degree in electrical engineering, with substantial related course work or an established research record in resilient/robust control, distributed control, convex optimization, or reinforcement learning. Working experience with controller/hardware-in-the-loop setups and strong programming skills are preferred. Qualified applicants should submit their i) CV, ii) unofficial transcripts, and iii) samples of published work to davoudi@uta.edu.

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6.3. PhD: Technical University of Munich, Germany
Contributed by: Matthias Althoff, althoff@in.tum.de

PhD position for Safe Human-Robot Interaction

The Research Group Cyber-Physical Systems of Prof. Matthias Althoff at the Technical University of Munich offers a PhD position for Safe Human-Robot Interaction. The offered position has a strong focus on motion planning of robots and formal verification. The Technical University of Munich is one of the top research universities in Europe. The university fosters a strong entrepreneurial spirit and international culture that places it at the forefront of research in a diversity of disciplines.

More information can be found at
https://portal.mytum.de/jobs/wissenschaftler/NewsArticle_20201020_102110

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6.4. PhD: Norwegian University of Science and Technology, Norway
Contributed by: Lars Imsland, lars.imsland@ntnu.no

PhD position at NTNU, Norway

We have a PhD position on efficient methods for nonlinear model predictive control for large models:

https://www.jobbnorge.no/en/available-jobs/job/194762/phd-position-at-the-department-of-engineering-cybernetics

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6.5. PhD: TU Delft, The Netherlands
Contributed by: Tamas Keviczky, t.keviczky@tudelft.nl

PhD position: Delft University of Technology, The Netherlands.
What: 4-year full-time PhD position
Where: Delft Center for Systems and Control (DCSC), Delft University of Technology (TU Delft), The Netherlands

Topic: Robust stochastic decision-making, optimal control, and planning (for autonomous greenhouse solutions)

Job Description: We are looking for a talented, motivated and outstanding Ph.D. candidate with enthusiasm for interdisciplinary research challenges at the interface of Systems and Control Theory, Optimisation, and Horticultural Applications.

The successful candidate will be supervised by Tamas Keviczky (TU Delft), and will conduct both theoretical and algorithmic/applied research on the design of robust model-based and data-driven stochastic economic predictive control algorithms for the aerial and root zone environments in autonomous greenhouses, within the research project SYNERGIA: SYstem change for New Ecology-based and Resource efficient Growth with high tech In Agriculture.

The project: Do you want to be part of the multidisciplinary SYNERGIA team of researchers from 5 Dutch universities working towards next-generation agricultural production systems that are sustainable, circular and regenerative? The SYNERGIA research project, funded by the Netherlands Organisation for Scientific Research (NWO), contributes to the UN Sustainability Development Goals for the environment (depletion of scarce resources, global warming, acidification, eutrophication, nutrient losses, and biodiversity loss), labour (availability of skilled workers), and society (consumer/societal acceptance of novel technology and production methods). SYNERGIA goes beyond current precision agriculture and is developing the new concept of "Technology-4-Ecology-based farming" (T4E) where biological/ecological principles in farming lead the development of new farming systems, and of the required technological knowledge, principles and tools. Our multi-disciplinary team with biology, ecology, agronomy, technology and social science backgrounds will devise farming technologies to enable and support truly ecology-based farming systems. https://technology4ecology.org/

Requirements: Needed qualifications:
- M.Sc. degree in Systems and Control, Applied Mathematics, Electrical/Mechanical Engineering or related field
- Strong theoretical background: mathematical and systems-and-control knowledge, expertise in robust and model predictive control, and stochastic systems
- Very good programming skills
- Excellent written and oral communication skills in English (Dutch not required)
- Ability and interest to conduct interdisciplinary research
- Team player willing to participate in project meetings and discussions across scientific fields

Conditions of employment: The appointment will be for 4 years. The PhD student will participate in the training and research activities of the TU Delft Graduate School and of the Dutch Institute of Systems and Control (DISC). As an employee of TU Delft, the PhD student will receive a competitive salary and benefits in accordance with the Collective Labour Agreement for Dutch Universities (CAO). The TU Delft offers a customisable compensation package, a discount for health insurance and sport memberships.

How to apply: Please follow the application instructions provided at the following website: https://www.dcsc.tudelft.nl/vacancies.html

The expected starting date is spring 2021 (flexible). The call for applications will remain open until the ideal

candidate is found. However, the deadline for full consideration is December 15, 2020.

For more information: Please contact Prof. Tamas Keviczky (t.keviczky@tudelft.nl)

6.6. PhD: TU Delft, The Netherlands
Contributed by: Giulia Giordano, giulia.giordano@unitn.it

PhD Position: Structural analysis and control of complex ecological systems
PhD position: Delft University of Technology, The Netherlands.
What: 4-year full-time PhD position
Where: Delft Center for Systems and Control (DCSC), Delft University of Technology (TU Delft), The Netherlands
Topic: Structural analysis and control of complex ecological systems (to support intercropping design in arable farming)

Job Description: We are looking for a talented, motivated and outstanding Ph.D. candidate with enthusiasm for interdisciplinary research challenges at the interface of Systems and Control Theory, Optimisation, and Biological and Ecological Modelling.

The successful candidate will be supervised by Giulia Giordano (University of Trento) and Tamas Keviczky (TU Delft), and will conduct theoretical and algorithmic research on the structural analysis and control of nonlinear dynamical networks in biology/ecology, with application to intercropping design in arable farming, within the research project SYNERGIA: SYstem change for New Ecology-based and Resource efficient Growth with high tech In Agriculture.

The project: Do you want to be part of the multidisciplinary SYNERGIA team of researchers from 5 Dutch universities working towards next-generation agricultural production systems that are sustainable, circular and regenerative? The SYNERGIA research project, funded by the Netherlands Organisation for Scientific Research (NWO), contributes to the UN Sustainability Development Goals for the environment (depletion of scarce resources, global warming, acidification, eutrophication, nutrient losses, and biodiversity loss), labour (availability of skilled workers), and society (consumer/societal acceptance of novel technology and production methods). SYNERGIA goes beyond current precision agriculture and is developing the new concept of "Technology-4-Ecology-based farming" (T4E) where biological/ecological principles in farming lead the development of new farming systems, and of the required technological knowledge, principles and tools. Our multi-disciplinary team with biology, ecology, agronomy, technology and social science backgrounds will devise farming technologies to enable and support truly ecology-based farming systems. https://technology4ecology.org/

Requirements: Needed qualifications:
- M.Sc. degree (or close to completion) in Systems and Control, Applied Mathematics, Electrical Engineering or related field
- Strong theoretical background: mathematical and systems-and-control knowledge, expertise in networked dynamical systems and ordinary/partial differential equations
- Very good programming skills

- Excellent written and oral communication skills in English (Dutch not required)
- Ability and interest to conduct interdisciplinary research
- Team player willing to participate in project meetings and discussions across scientific fields

Conditions of employment: The appointment will be for 4 years. The PhD student will participate in the training and research activities of the TU Delft Graduate School and of the Dutch Institute of Systems and Control (DISC). As an employee of TU Delft, the PhD student will receive a competitive salary and benefits in accordance with the Collective Labour Agreement for Dutch Universities (CAO). The TU Delft offers a customisable compensation package, a discount for health insurance and sport memberships.

How to apply: Please follow the application instructions provided at the following website: https://www.dcsc.tudelft.nl/vacancies.html

The expected starting date is spring 2021 (flexible). The call for applications will remain open until the ideal candidate is found. However, the deadline for full consideration is December 15, 2020.
For more information on the position requirements and expected scientific activities, please contact Prof. Giulia Giordano (giulia.giordano@unitn.it) on the SYNERGIA project and PhD program at TU Delft, please contact Prof. Tamas Keviczky (t.keviczky@tudelft.nl)

6.7. PhD: Technical University of Kaiserslautern, Germany
Contributed by: Naim Bajcinca, naim.bajcinca@mv.uni-kl.de

Two PhD positions on Control at Technical University of Kaiserslautern (Germany)

At the University of Kaiserslautern in Germany there is a vacancy for two PhD Positions in cooperative control of autonomous vehicles.

Background: The underlying project targets the design of real-time cooperative control of autonomous vehicles in dense traffic situations. The design of driving trajectories for a such emerging multiagent system is to be carried out by predictive control and tested practically on autonomous vehicles, also on the public streets, utilizing a versatile digital computational infrastructure and a set of sensors for environment perception, including a ground penetrating radar. Moreover, the cooperative Car2Car and Car2X behavior based on the corresponding off-the-shelf, as well as 5G communication standards, will be taken into account.

Project Description: The successful candidate will be responsible for the design of a Network-Control-System (NCS) in the framework of Event Driven Model-Predictive-Control (MPC), where the communication channel shall play a critical role. He/she will be a part of a young interdisciplinary team guided by a research cooperation with a large number of established industrial partners. The project is funded by the German Federal Ministry of Transport and Digital Infrastructure (BMVI).

Requirements: Applicants should have completed their studies in Control/Electrical Engineering with excellent average grades and have demonstrated excellent abstract thinking and programming expertise. Experience in control and optimization theory is advantageous. The completion of a doctoral thesis is an

expected requirement.

Conditions of Employment: The position will start on January 1st 2021, and run for at least three years. Candidates in the process of obtaining their M.Sc. degree shall be also considered provided that they complete all the degree requirements no later than the agreed starting date.

The employment contract is governed by the provisions of the collective agreement of the federal states (TV-L) and is limited in time.

About TU Kaiserslautern: The University of Kaiserslautern is a research university in Kaiserslautern, Germany founded on July 13, 1970. TU Kaiserslautern is organized into 12 faculties. Approximately 14,869 students are enrolled at the moment. There are numerous institutes around the university, including two Fraunhofer Institutes (IESE and ITWM), the Max Planck Institute for Software Systems (MPI SWS), the German Research Center for Artificial Intelligence (DFKI all of which cooperate closely with the university.

Application and More Information: Applications must include the following elements (as a single PDF file):
- Cover letter with a brief description of why you want to pursue research studies, about what your academic interests are and how they relate to your previous studies and future goals
- CV including your relevant professional experience and knowledge
- Copies of diplomas and grades from previous university studies

Send an email with the required documents to the address: mec-apps@mv.uni-kl.de

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6.8. PhD: Technical University of Kaiserslautern, Germany
Contributed by: Naim Bajcinca, naim.bajcinca@mv.uni-kl.de

Two PhD positions on Control Theory at Technical University of Kaiserslautern (Germany)

The University of Kaiserslautern has currently a vacancy for two PhD Positions in optimal resource allocation and resilience control of hybrid systems.

Background: The Internet of Things is making its way into all areas of industry. In intelligent automation, however, significant challenges in the area of resilience and dynamic self-organization concerning changing resources still have to be mastered. A formal design methodology for verifiable system architectures in intelligent automation is to be developed in our project. Mixed-Criticality describes a mapping of functions to resources based on their criticality according to the available resource contingents. Changes in these contingents due to failures or attacks and process variations require a reconfiguration of the system. The reconfiguration must be methodologically conceived at the design time such that the selected architecture provably enables the required system properties even under degradation or failure of resources. Control-theoretic methods for robust hybrid and event-based systems are to be used.

Project Description: The successful candidate is expected to devise new optimization based control (optionally game theoretic) design methods to guarantee resilience indices of cyber-physical systems. By integrating security aspects into the design methodology, she/he will be responsible for developing a framework

for an attack-resistant mixed-criticality system.

Requirements: Applicants should have completed their Control/Electrical Engineering studies with above-average grades and have demonstrated excellent abstract thinking and programming expertise. Experience in optimal control, game theory, or hybrid systems is highly preferable. The completion of a doctoral thesis is expected.

Conditions of Employment: The filling of the position will start on January 1st until April 1st of 2021, and it will run for at least three years. Candidates in the process of obtaining their M.Sc. degree shall be also considered provided that they complete all the degree requirements no later than the agreed starting date.

The employment contract is governed by the provisions of the collective agreement of the federal states (TV-L) and is limited in time.

About TU Kaiserslautern: The University of Kaiserslautern is a research university in Kaiserslautern, Germany founded on July 13, 1970. TU Kaiserslautern is organized into 12 faculties. Approximately 14,869 students are enrolled at the moment. There are numerous institutes around the university, including two Fraunhofer Institutes (IESE and ITWM), the Max Planck Institute for Software Systems (MPI SWS), the German Research Center for Artificial Intelligence (DFKI all of which cooperate closely with the university.

Required Application documentation: Applications must include the following elements (as a single PDF file):
- Cover letter with a brief description of why you want to pursue research studies, about what your academic interests are and how they relate to your previous studies and future goals
- CV including your relevant professional experience and knowledge
- Copies of diplomas and grades from previous university studies

Send an email with the required documents to the address: mec-apps@mv.uni-kl.de

6.9. PhD: Louisiana State University, USA
Contributed by: Michael Malisoff, malisoff@lsu.edu

PhD positions available at Louisiana State University

Ph.D. positions are available at Louisiana State University (LSU) in Baton Rouge, LA, to work on a newly funded NSF project on advanced applied nonlinear control. We welcome applications from qualified candidates with degrees in mathematics, electrical engineering, mechanical engineering, or closely related fields.

Preference will be given to students having a good background in control theory who are motivated to do cutting-edge research in ecological robotics and event-triggered control and who possess strong computing skills. Interested applicants are encouraged to contact Prof. Malisoff through malisoff@lsu.edu and include their CVs and transcripts in their first communications. LSU is the flagship university of the State of Louisiana and offers a vibrant highly research active environment that is welcoming to a diverse, highly qualified cadre of students.

6.10. PhD: The University of British Columbia, Canada
Contributed by: Ahmad W. Al-Dabbagh, ahmad.aldabbagh@ubc.ca

PhD: The University of British Columbia, Canada
Start Date: May 2021 or September 2021

Dr. Ahmad W. Al-Dabbagh is looking to recruit up to 3 PhD students to join his group, with the School of Engineering at the Okanagan campus of the University of British Columbia (ranks among the 40 best universities in the world). The students should be self-motivated and eager to perform excellent research in relation to any one of the following:

1. Model-based fault diagnosis, cyber security, and event-triggered communication and control; and
2. Data-driven abnormality diagnosis, alarm management, and causality inference and forecasting.

For further details, prospective applicants are encouraged to visit https://olcsr.ok.ubc.ca. For consideration, prospective applicants can email Dr. Al-Dabbagh at ahmad.aldabbagh@ubc.ca, and include their CV and transcripts, and links to any publications.

6.11. PhD: University of Groningen, The Netherlands
Contributed by: Claudio De Persis, c.de.persis@rug.nl

PhD Position Learning and Control - University of Groningen

A PhD position financed by the Netherlands Organisation for Scientific Research Perspectief programme on Digital Twins is available at the University of Groningen, the Netherlands, under the supervision of Prof. Claudio De Persis.

We are looking for strong candidates willing to develop the theoretical foundations and the key-enabling technologies for the integration of data-driven control-oriented learning approaches and model-based engineering methods. The results will be tested on real-world problems proposed by industrial partners.

Interested candidates are invited to send a complete application to c.de.persis@rug.nl, n.monshizadeh@rug.nl and p.tesi@rug.nl, including the following items in a single PDF file:
1. A Curriculum Vitae with contact information of two academic references.
2. A statement of motivation/purpose, listing down relevant research experience (max 1 page).
3. Grade transcripts of obtained degrees/diplomas in English.

Candidates with a masters degree in Applied Math, Control Engineering, Electronic/Electrical Engineering, Computer Science from a top university and research experience in control theory, machine learning, system identification are particularly encouraged to apply.

Please use "SMS-DT Application" as the subject of the email. Applications are accepted on a continuing basis. Only applicants who are shortlisted for an interview will be contacted.

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

PhD position: Game-theoretic Control for Multi-Vehicle Automated Driving

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

General project description: The candidate will conduct theoretical and algorithmic research on multi-agent control for multi-vehicle multi-lane automated driving. The research will develop and build upon tools from game theory and mixed-integer optimization. The position is in the context of the research project "Artificially Intelligent Multi-Vehicle Automated Driving Systems" (AMADeuS), funded by the Netherlands Organisation for Scientific Research (NWO) domain Applied and Engineering Sciences (TTW).

General project abstract: https://bit.ly/35Ngxzk

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

Applications shall include the following documents:

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

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

6.13. PhD/Postdoc: TU Delft, The Netherlands
Contributed by: Javier Alonso-Mora, j.alonsomora@tudelft.nl

PhD and Postdoc positions Multi-robot control at TU Delft

We have fully funded PhD and Postdoctoral Researcher vacancies in the topic of Multi-Robot Motion Planning, Task Assignment and Learning for Mobile Manipulators in Dynamic Human-Centered Spaces. Both positions are hosted by the Autonomous Multi-robots Lab of the Department Cognitive Robotics at TU Delft.

In this project you will develop novel methods for multi-robot motion planning and task assignment in dynamic environments shared with humans, employing a combination of trajectory optimization (motion planning), combinatorial optimization (task assignment) and machine learning techniques. Within a larger H2020 project, you will then apply your methods to assistive mobile manipulation in healthcare.

This PhD is part of the H2020 project "HARMONY: Enhancing Healthcare with Assistive Robotic Mobile Manipulation". The overall goal of Harmony is to enable robust, flexible and safe autonomous mobile manipulation robots for use in human-centred environments by making fundamental contributions in cognitive mechatronic technologies. Our targeted application area is assistive healthcare robotics. Our contribution to the project will be the multi-robot motion planning and task assignment module.

For detailed information on the position and how to apply see:

- PhD position:

https://www.academictransfer.com/en/295233/phd-position-multi-robot-motion-planning-and-task-assignment-in-dynamic-human-centered-spaces/apply/

- Postdoctoral position:

https://www.academictransfer.com/nl/295234/postdoc-multi-robot-motion-planning-task-assignment-and-learning-for-mobile-manipulation-in-dynamic-human-centered-spaces/

If you have specific questions about these positions, please contact Associate Professor J. Alonso-Mora (j.alonsomora@tudelft.nl, +31 152785489) Always specify the vacancy number in the email subject. Please do not send application emails to this email address but use the specified address (application-3mE@tudelft.nl).

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6.14. PhD/Postdoc: National Institute of Informatics, Japan
Contributed by: Masako Kishida, kishida@nii.ac.jp

PhD/Postdoc Positions in Control for AI-intensive Cyber Physical Systems at National Institute of Informatics, Tokyo, Japan

We are seeking a postdoc researcher and 2 Ph.D. candidates who collaborate with us in the project "CyPhAI: Formal Analysis and Design of AI-intensive Cyber-Physical Systems" funded by JST. The detail of the call can be found at: https://hackmd.io/HqD7t6atQyuXzMyKuLX3UQ?view
This project aims at establishing mathematically-solid methodologies to model, verify, test, monitor, and control a cyber-physical system in which AI plays crucial role (AI-CPS), and consists of several teams with different expertise. This call is for positions in control theory team led by Masako Kishida (National In-

stitute of Informatics, Tokyo, Japan) . The contract will initially run until the end of March 2021, with the possibility of annual renewal at maximum 5 years.

Qualifications: A successful applicant must satisfy the following requirements.

Postdoc researchers:
• He/She must have a Ph.D. degree or must be very close to its completion.
• He/She must be (self-)motivated, dedicated, open-minded, and able to work both independently and collaboratively.
• He/She must have strong communication skills in oral/written English due to the international and interdisciplinary nature of our project.
• He/She must be an expert of at least one of the following areas: (1) control theory with rigorous mathematics, (2) learning-based control for cyber-physical systems, (3) symbolic control, (4) hybrid systems.

Ph.D. students:
• He/She must be (self-)motivated, dedicated, open-minded, and able to work both independently and collaboratively.
• He/She must have strong communication skills in oral/written English due to the international and interdisciplinary nature of our project.
• He/She must be familiar with at least one of the following areas: (1) control theory with rigorous mathematics, (2) learning-based control for cyber-physical systems, (3) symbolic control, (4) hybrid systems.

Applications and inquiries: Applications should be sent to application-cyphai [at] fos.kuis.kyoto-u.ac.jp, with the subject CREST Job Application. Please include
• your brief CV,
• short description of research interests (can be very informal and short),
• the list of papers (a dblp or Google scholar link will do, for example),
• a couple of representative papers (in pdf), and
• (preferably) the contact of two references

We will contact you for further material and interview, provided that we find sufficient relevance in your application. Starting dates are flexible. The positions will remain open until filled. The project ends in March 2026.

Inquiries should also be sent to application-cyphai [at] fos.kuis.kyoto-u.ac.jp, with the subject CREST Job Inquiry.

6.15. PhD/Postdoc: Chemnitz University of Technology, Germany
Contributed by: Stefan Streif, stefan.streif@etit.tu-chemnitz.de

Position in Machine Learning and Optimal Control in Autonomous Driving

The Automatic Control and System Dynamics Lab at the Chemnitz University of Technology offers a position as a postdoc or PhD student (full-time position; initially until March 2023 with the possibility of

contract extension; competitive salary depending on the level of expertise; full health insurance included).

Project Descriptions (Machine Learning and Optimal Control in Autonomous Driving):

The research is based on preliminary works from the professorship, in which own ideas should be brought in. A particular focus is on the integration of machine learning methods into the design of controllers for nonlinear systems with uncertainties. Anticipated research results include the derivation of performance bounds of the developed optimal control methods and mathematical proofs for robust stability. Implementation of the controllers and test runs are planned in collaboration with project partners.

The project is conducted in close collaboration with other members of the professorship as well as with international academic and industrial partners. You will use your research results for scientific publications in high-ranking journals and at international conferences as well as for your own qualification. Postdocs also have the opportunity to supervise doctoral students and to establish a research group.

The research environment: Research at the lab focuses on method-oriented basic research and applies the developed control methods in various projects together with application partners. Besides the above mentioned project, we offer a variety of other interdisciplinary projects as well as a large freedom for own research ideas and solutions. Well-equipped and new offices, laboratories and IT facilities provide an ideal research environment.

Your profile:

* a very good scientific university degree in engineering or applied mathematics;
* very good theoretical knowledge in as many of the following areas as possible: control engineering (especially optimal control), system theory, and machine learning;
* publication experience in international and peer-reviewed journals would be an advantage;
* very good command of written and spoken English;
* the ability to conduct independent research and to cooperate in a team;
* interest in the supervision of students or doctoral candidates.

Application process: To apply or to request more information, please contact Stefan Streif at sekretariat-control@etit.tu-chemnitz.de as soon as possible quoting the reference number 241031-42-CSS.

Application deadline: 30 November 2020

6.16. PhD/Postdoc: Leibniz University Hannover, Germany
Contributed by: Matthias Müller, mueller@irt.uni-hannover.de

PhD/Postdoc position in Control Theory, Leibniz University Hannover, Germany

We offer one PhD/Postdoc position at the Institute of Automatic Control at the Leibniz University Hannover, Germany. The project is part of the ERC Starting Grant Cont4Med, which focuses on control and estimation for nonlinear systems where only a (very) limited amount of information (measurements and

models) is available, as motivated by certain biomedical applications.

The main focus of the open position is the study of observability properties and the design of different estimation schemes (such as, e.g., moving horizon estimation) for nonlinear systems where only few, irregularly sampled measurements are available. Also data- and learning-based approaches shall be considered. The project will focus on the development of novel control-theoretic methods which are of relevance in various cutting-edge applications and which shall be tested (mostly by other group members) in biomedical applications.

The position is both suitable for a PhD student or Postdoc. We offer a competitive salary according to the German pay scale TVL-13, including social benefits. The candidate is expected to hold a Master/Doctoral degree in control engineering or a related subject with specialization in control. Experience in optimization-based control and estimation (model predictive control, moving horizon estimation) would be desirable. Also, teaching assistance in bachelor and master level control courses is expected.

Please send your application including a complete curriculum vitae, certificates, and a motivational letter until November 20, 2020 to mueller@irt.uni-hannover.de

For more information on the position, please contact Prof. Matthias Müller, mueller@irt.uni-hannover.de or consult the webpage www.irt.uni-hannover.de/jobs

6.17. Postdoc: University of California, San Diego, USA
Contributed by: Jorge Cortes, cortes@ucsd.edu

Postdoctoral Fellow in Distributed Control of Grid-Interactive Distributed Energy Resources at UC San Diego

Open date: October 22, 2020
Next review date: November 8, 2020
Apply by this date to ensure full consideration by the committee.
Final date: November 30, 2020
Applications will continue to be accepted until this date, but those received after the review date will only be considered if the position has not yet been filled.

Description: The Department of Mechanical and Aerospace Engineering (http://mae.ucsd.edu/), at the University of California, San Diego, (https://ucsd.edu/) is conducting an open search for a postdoctoral fellow. The postdoctoral fellow would be jointly supervised by Professors Jan Kleissl, Sonia Martinez, Jorge Cortes, Raymond de Callafon (all MAE), Rajesh Gupta (CSE).

UC San Diego will build a large research facility for distributed energy resources (DER) control and testing over 5 years. The DERConnect facility will serve as a national testbed for autonomous energy systems, distributed control algorithms, and electric vehicles, solar power inverters, smart buildings, and battery energy storage systems. This networked cyberphysical facility will enable the transition of the electric power system from a few centralized fossil generators to a renewable energy system with millions of intercon-

nected, independent DERs in residences and businesses that would dramatically reduce costs and increase efficiencies.

The Postdoctoral Fellow should have expertise in one or more of the following technical areas:
- Distributed controls including theory, algorithms, topologies, and implementation (Importance: high)
- Hardware, e.g. through physical experiments and embedded programming (high)
- Electric power simulation systems such as Real-Time Simulators and Hardware-In-the-Loop (HIL) (medium)
- Cloud-based database systems, data workflows, and maintenance of open-source analysis tools (medium)
- Power engineering including Phasor Measurement Units and Real-Time Automation Controllers (low)
- Distributed communications including IEEE protocols, security, and synchronous operation (medium)

Appointment durations are one year and renewed based on availability of funding and performance. Exceptional candidates will be able to transition to a Project Scientist position after one year. We envision an appointment duration of 4 years total for the construction of the facility. The postdoctoral fellow would be the intellectual lead during the construction and oversee an engineer, four PhD students, and a project manager. During transition to operations, we envision that the (then) Project Scientist would become the director of the facility during operations. The Project Scientist would then have the opportunity to collaborate with partners across the US in proposal writing, experiment execution, and research papers.

Since the work will be highly collaborative, excellent communication, team-building, and leadership skills are essential.

Required Qualifications: Doctorate degree or its equivalent.

Preferred Qualifications: Experience and commitment to independent research and funding, mentoring/training, university and community service, and to building an equitable and diverse scholarly environment.

Review of applications will commence on November 8, 2020 and will be ongoing. Salary is commensurate with qualifications and based on published University of California pay scales. Applications (CV and Cover letter) must be submitted to mio005@ucsd.edu with subject line "MAE DERConnect Postdoc App".

The Office of Research Affairs at UC San Diego is committed to academic excellence and diversity within the academic, staff, and student body. UCSD is an AA/EOE/M/F/D/V" or "EOE/AA/M/F/VET/DISABILITY."

6.18. Postdoc: Georgia Tech, USA
Contributed by: Panagiotis Tsiotras, tsiotras@gatech.edu

Post-Doctoral Position in Multi-Agent Reinforcement Learning

A post-doctoral position is available immediately with the Institute for Robotics and Intelligent Machines (IRIM) at Georgia Tech in the general area of Reinforcement Learning with applications to multi-agent systems and/or stochastic games.

Of particular interest are applicants with experience in one or more of the following areas:

- RL/IRL techniques for autonomous systems
- Deep learning, DNN
- Multi-agent RL
- Stochastic games

Successful candidates should have a PhD degree in Engineering, Mathematics, or Computer Science, with a demonstrated record of publications in the areas of interest to the position. The appointment will be initially for 12 months with a possible extension for up to 24 months. The position is available immediately.

Interested candidates should submit an extended resume, along with a list of publications and the names of three references to: Prof. Panagiotis Tsiotras, School of Aerospace Engineering, Institute for Robotics and Intelligent Machines, Georgia Institute of Technology, Atlanta, GA 30332-0150 USA, Email: tsiotras@gatech.edu.

Applications received by November 15, 2020 will receive full consideration.

6.19. Postdoc: Free University of Bozen-Bolzano, Italy
Contributed by: Karl D von Ellenrieder, kvonellenrieder@unibz.it

Postdoctoral Research Fellow (AR)

We are looking for a postdoctoral researcher to work on a project entitled RECOARO, which involves the development of Modular reconfigurable robots. MRRs are composed of interchangeable mechatronic modules that can be rearranged to adapt a robot to operate under new circumstances, perform different tasks, or recover from damage. It is anticipated the situations in which manually reconfigured MRRs will be deployed require the use of semi-automatic shared human-robot control. This work will involve the development of a shared trajectory-tracking control system for a MRR. In collaboration with other project participants, the researcher will be expected to conduct both theoretical analyses (e.g. using Lyapunov stability and homogeneity) and experimental implementation/validation on a mobile robot (using ROS-based software).

Additional research activities in the context of other research projects on similar topics may be defined in due course with the mutual agreement between research assistant and supervisor. If the supervision of this activity taking place within another project is done in detail by a different professor/researcher, the main supervisor has to explicitly countersign the part of the report regarding the activity on additional research projects.

Gross annual remuneration: 29.100 Euro

Duration of the contract: 12 months – Possible extension until the following date, whereas such an extension of the contract is necessary to complete the project and is subject to a positive assessment of the activity performed, as well as the availability of financial resources: 31-12-2022
Anticipated start of contract: 01-01-2021

Minimum degree requirements: PhD or equivalent foreign degree in one of the following fields: Systems

and Control Engineering (ING-INF/04); (09/A field) Mechanical Engineering, Aeronautical or Aerospace Engineering, Ocean/Marine Engineering, Applied Mathematics

Required Language skills:
- a B2 language certificate in English (or native speaker); and
- a B2 language certificate in either Italian and/or German (or native speaker).

Detailed information about the position can be found at the following website
https://bit.ly/3kJoBaB

Applications are only accepted at the following online application portal https://bit.ly/2TlXIxv

6.20. Postdoc: Aarhus University, Denmark
Contributed by: Erdal Kayacan, erdal.kayacan@gmail.com

Postdoc or research assitant position on visual-SLAM-based autonomous navigation and inspection of ships using aerial robots

The Department of Engineering, Aarhus University, invites applicants for a 1-year Postdoc or research assitant position offering applicants an exciting opportunity to join a new research project on visual-SLAM-based autonomous navigation and inspection of ships using aerial robots.

The position is available from 15 January 2021 or as soon as possible hereafter.

https://international.au.dk/about/profile/vacant-positions/job/postdoc-or-research-assistant-position-in-visual-slam-based-autonomous-navigation-and-inspection-of-1/

6.21. Postdoc: TU Delft, The Netherlands
Contributed by: Azita Dabiri, a.dabiri@tudelft.nl

The Delft Center for Systems and Control (DCSC) of Delft University of Technology (TU Delft), The Netherlands is seeking a qualified candidate for a one-year PostDoc position within the research area of integration of model-based and learning-based control, with the application in urban network traffic control.

Job description: The current state of the art for efficient and green urban mobility can be divided into two parts: system- optimum oriented approaches mainly target dynamic control of traffic lights to decrease congestion in urban areas; and user-optimum oriented approaches mainly focus on developing individual driving assistance systems for eco-driving in urban areas. In this project, we aim to target system-optimum and user-optimum by making traffic lights and vehicles work together while we address scalability, model uncertainty and fluctuations in traffic demand. We achieve these goals by means of an integrated approach combining model-based (e.g. Robust MPC) and learning-based control techniques (e.g. reinforcement learning).

Requirements: We are looking for a talented, outstanding Postdoc researcher with a PhD degree (or close to completion) in Systems and Control, Applied Mathematics, or a related field, with theoretical background and/or interest in automatic control, numerical optimization, and/or machine learning. Knowledge on urban traffic control is a plus but not necessary. A good command of the English language is required.

Conditions of employment: Salary and benefits are in accordance with the Collective Labour Agreement for Dutch Universities. The TU Delft offers a customisable compensation package, a discount on health insurance and sport memberships, and a monthly work costs contribution. Flexible work schedules can be arranged. For international applicants we offer the Coming to Delft Service and Partner Career Advice to assist you with your relocation. An International Children's Centre offers childcare and there is an international primary school.

About Delft Center for Systems and Control: The department Delft Center for Systems and Control (DCSC) of the faculty Mechanical, Maritime and Materials Engineering, coordinates the education and research activities in systems and control at Delft University of Technology. The Centers' research mission is to conduct fundamental research in systems dynamics and control, involving dynamic modelling, advanced control theory, optimisation and signal analysis. The research is motivated by advanced technology development in physical imaging systems, renewable energy, robotics and transportation systems.

Application procedure: Please send your application as a single PDF file to application-3me@tudelft.nl, referring to vacancy number TUD00511. The application should include

- Curriculum vitae,
- Statement of motivation and research interests (up to 2 pages),
- Transcripts of all exams taken and the corresponding marks,
- Contact information for at least two academic references (e.g. project/thesis supervisors),
- Abstract of the PhD thesis and up to 3 research-oriented documents (e.g. conference/journal publication).

Dr. Azita Dabiri (a.dabiri@tudelft.nl) can be contacted for more information about this vacancy. The application deadline for the position is November 20, 2020.

6.22. Postdoc: Purdue University, USA
Contributed by: Philip E. Paré, philpare@purdue.edu

Lillian Gilbreth Postdoctoral Fellowship – Epidemics Focus

The Lillian Gilbreth Fellowship Program, a very prestigious and competitive program at Purdue University. In addition to the great name and prestige of the two-year program, the financial package is quite good (an annual stipend of $70k, benefits, and $5k for travel).

Application Deadline: Dec 4, 2020

Proposed Project Title: Modeling and Control of Disease Spread in Multiplex Networks

Project Description: The COVID-19 pandemic has changed the way the world operates. Using ideas from network science, systems and control theory, and data science, mathematical models can be developed to model the spread of a disease. Given effective models, optimization theory can be used to develop control algorithms that mitigate viral spread.

The objective of this project is to develop mathematical models that are detailed enough to capture the underlying interaction of people via contact networks inferred from various big data sources, as well as how the interactions of social, human, and urban networks affect the spread of the epidemic, while still being computationally tractable to inform policy making. The proposed models will be validated by employing social media data and high-resolution human movement data collected from cellular devices. This data will also give insight into how the interaction of people and ideas evolved from pre-outbreak times through the different stages of the COVID-19 pandemic, as well as the effects of the different implemented control measures on health outcomes. Finally, given the validated framework, optimization techniques will be used to design distributed algorithms to mitigate/eradicate the virus and identify the best control measures that are effective while considering the heterogeneity of cities.

https://engineering.purdue.edu/Engr/Research/GilbrethFellowships/ResearchProposals/2021-22/modeling-and-control-of-disease-spread-in-multiplex-networks

Program Eligibility (stricter this year due to the COVID pandemic): U.S. citizens and permanent residents, who have either completed their PhD on or after Dec. 4, 2018, or are in the final year of their PhD program in engineering or related sciences, can apply. Non-U.S. citizens or non-permanent residents can apply only if they are currently in the U.S. AND have either completed their PhD on or after Dec. 4, 2018, or are in the final year of their PhD program in engineering or related sciences. Applicants with PhDs granted on or after 12/4/17 will also be considered in cases of childbirth or adoption.

6.23. Postdoc: Aarhus University, Denmark
Contributed by: Erdal Kayacan, erdal@eng.au.dk

Postdoc or research assistant positions in offshore wind turbine inspection using aerial robots

The Department of Engineering, Aarhus University, invites applicants for a 1-year Postdoc or research assistant position offering applicants an exciting opportunity to join a new research project on Offshore wind turbine inspection using aerial robots.

The position is available from Jan 15, 2021 or as soon as possible hereafter
https://au.career.emply.com/ad/postdoc-or-research-assistant-positions-in-offshore-wind-turbine-inspection-using/mgn7lr/en

Erdal Kayacan

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

PostDoc position: Game-theoretic Control for Systems of Hybrid Systems

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

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

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

Applications shall include the following documents:

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

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

6.25. Postdoc: University of California Santa Cruz, USA
Contributed by: Ricardo Sanfelice, ricardo@ucsc.edu

Postdoctoral Scholar Positions at the University of California, Santa Cruz

Postdoctoral Scholar positions are available at the Hybrid Systems Laboratory at the Department of Electrical and Computer Engineering, University of California in Santa Cruz, California, in the area of modeling, analysis, and design of hybrid and cyber-physical systems. The projects associated with the positions pertain to the generation of new theory for the design of algorithms guaranteeing safety, security, and robustness in autonomous systems. Relevant areas of expertise include nonlinear and hybrid control, model predictive control, model-based learning, and security.

Candidates with a Ph.D. in engineering or applied math, with a strong theoretical background and expertise are encouraged to apply by submitting, via email to Prof. Ricardo Sanfelice (ricardo@ucsc.edu), the following: 1) a curriculum vitae, including educational background and a list of publications, 2) two publications representing the applicant's research work, and 3) contact information for two references.

Review of applications will start on December 1, 2020. The position is available immediately for a duration of one year, renewable depending on performance.

More information about the research at the Hybrid Systems Laboratory is available at https://hybrid.soe.ucsc.edu. The University of California at Santa Cruz also houses the Cyber-Physical Systems Research Center (https://cps.ucsc.edu), which brings together more than 30 faculty with interest in machine learning, networking, robotics, and control.

6.26. Postdoc: University of Michigan, USA
Contributed by: Ilya Kolmanovsky, ilya@umich.edu

Post-doctoral Position Opening in Model Predictive Control at the University of Michigan

A post-doctoral research fellow position is open in the Aerospace Engineering Department at the University of Michigan, Ann Arbor, USA.

We are looking for a qualified individual to conduct research on both theoretical and computational aspects of Model Predictive Control (MPC) towards developing theoretically justified and computationally reliable methods for obtaining numerical solutions in aerospace engineering and autonomous systems applications for which MPC is increasingly considered as an enabling technology.

A preferred candidate will have background in model predictive control, numerical optimization, optimal control, and interest in developing theory which is effective in applications.

The position is initially for one year, and renewable for subsequent years. The intended start date is January 1, 2021.

To apply for this position, please send an e-mail (Subject: PostDoc Applications in Model Predictive Control), a CV and the names of three references to Prof. Ilya Kolmanovsky at ilya@umich.edu and cc to Dr. Assen Dontchev, dontchev@umich.edu

6.27. Faculty: Eindhoven University of Technology, The Netherlands
Contributed by: Maurice Heemels, w.p.m.h.heemels@tue.nl

Title: Seven Assistant/Associate/Full Professor Positions at Eindhoven University of Technology, The Netherlands

The Department of Mechanical Engineering (ME) of the Eindhoven University of Technology (TU/e) is strengthening its world-leading position in the broad area of control, dynamics, optimisation, and artificial

intelligence. This strategy is aligned with the founding and expansion of new institutes such as the Eindhoven Artificial Intelligence Systems Institute, www.tue.nl/ai, and the growth and impact of our systems and control research in the Brainport region of the Netherlands (https://brainporteindhoven.com/int/), being Europe's leading innovative top technology region. To realize this ambition, we are opening seven (7) professor positions on all levels in the broad area of dynamics, control, optimisation, and artificial intelligence.

* At the Control Systems Technology (CST) Section
(https://www.tue.nl/en/research/research-groups/control-systems-technology/)

- Associate/Full Professor Systems and Control Technology
(https://jobs.tue.nl/en/vacancy/associate-full-professor-systems-and-control-technology-857695.html)

- Assistant Professor in Control and Optimisation for Intelligent Systems
(https://jobs.tue.nl/en/vacancy/assistant-professor-in-control-and-optimisation-for-intelligent-systems-862597.html)

- Assistant Professor in Modelling and Control of Multi-Physics Systems
(https://jobs.tue.nl/en/vacancy/assistant-professor-in-modelling-and-control-of-multiphysics-systems-857698.html)

- Assistant/Associate/Full Professor Mechanical Design Principles for High-Tech Systems
(https://jobs.tue.nl/en/vacancy/asst-assoc-full-professor-mechanical-design-principles-for-hightech-systems-857696.html)

* At the Dynamics and Control Section
(https://www.tue.nl/en/research/research-groups/dynamics-and-control/)

- Associate/Full Professor Dynamical Systems and Control
(https://jobs.tue.nl/en/vacancy/associate-full-professor-dynamical-systems-and-control-857710.html)

- Assistant Professor Multi-Physics Dynamical Systems Design
(https://jobs.tue.nl/en/vacancy/assistant-professor-1-fte-multiphysics-dynamical-system-design-834195.html)

- Assistant Professor Acoustics of complex engineering systems
(https://jobs.tue.nl/en/vacancy/assistant-professor-acoustics-of-complex-engineering-systems-863035.html)

For all these positions we are seeking excellent candidates to strengthen and expand our department. More details on these positions and the application procedure can be found in the respective links.

6.28. Faculty: Université Catholique de Louvain, Belgium
Contributed by: Guillaume Berger, guillaume.berger@uclouvain.be

Academic positions in Applied Mathematics and Computer Science at UCLouvain

UCLouvain invites applications for several tenure-track or tenured full-time positions in Applied Mathematics:

- An academic position in Automation and process control (1 FTE)
https://bit.ly/2HhP7ct

- An academic position in Mathematical optimization (1 FTE)
https://bit.ly/3o8rCU0
- An academic position in Mathematics for Artificial Intelligence (1 FTE)
https://bit.ly/356Yp2Q

And one in Computer Science:

- An academic position in Safety critical embedded systems (1 FTE)
https://bit.ly/3jdDel1

The deadline for applications is Monday, November 16, 2020 at noon.
For more information about UCLouvain's ICTEAM institute and the Louvain School of Engineering, please visit: https://uclouvain.be/en/research-institutes/icteam https://uclouvain.be/en/faculties/epl

6.29. Faculty: ETH Zurich, Switzerland
Contributed by: John Lygeros, jlygeros@ethz.ch

ETH Zurich: 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.

https://bit.ly/2TQZAP3

The successful candidate is expected to develop a strong and visible research programme in the (broad) area of embedded systems. He or she has a strong background in areas such as cyber-physical systems, embedded systems, sensor networks, neuromorphic systems, biomedical embedded systems, systems on chip (SoC), human-computer interaction or related fields.

The new professor must be committed to engaging teaching at the bachelor's level on cyber-physical systems/embedded systems and computer engineering as well as in advanced classes of the Master's 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 December 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.

6.30. Faculty: US Naval Academy, USA
Contributed by: Daniel Opila, opila@usna.edu

US Naval Academy EE Tenure-Track Opening

The Electrical and Computer Engineering (ECE) Department at the United States Naval Academy (USNA) in Annapolis, MD invites applications for a tenure-track faculty appointment starting as early as Fall 2021 at the rank of Assistant Professor in all fields of electrical engineering and related interdisciplinary topics.

US citizenship is required for employment. The full announcement can be found here:
`https://www.usna.edu/HRO/jobinfo/Tenure-track-ECE-AY21.php`

6.31. Project Scientist: University of California, San Diego, USA
Contributed by: Jorge Cortes, cortes@ucsd.edu

Assistant, Associate, or Full Project Scientist in Mechanical and Aerospace Engineering

The Department of Mechanical and Aerospace Engineering (http://mae.ucsd.edu/), at the University of California, San Diego, (https://ucsd.edu/) is conducting an open search for Project Scientists (non-tenured Assistant, Associate or Full level). At UC San Diego, Project Scientists
(`https://www.ucop.edu/academic-personnel-programs/_files/apm/apm-311.pdf`)
are academic researchers who are expected to make significant and creative contributions to a research team, but are not necessarily leaders of the research team. Project scientist positions are similar to postdoctoral fellow positions, but carry more responsibilities, a higher salary, and are typically of longer duration. Project Scientists are not required to carry out independent research or develop an independent research reputation but will publish and carry out research or creative programs with supervision by faculty. University and public service are encouraged but not required, and this position does not have formal teaching responsibilities.

UC San Diego will build a large research facility for distributed energy resources (DER) control and testing over 5 years. The DERConnect facility will serve as a national testbed for autonomous energy systems, distributed control algorithms, and electric vehicles, solar power inverters, smart buildings, and battery energy storage systems. This networked cyberphysical facility will enable the transition of the electric power system from a few centralized fossil generators to a renewable energy system with millions of interconnected, independent DERs in residences and businesses that would dramatically reduce costs and increase

efficiencies.

The Project Scientist should have expertise in one or more of the following technical areas:
-Distributed controls including theory, algorithms, topologies, and implementation (Importance: high)
-Hardware, e.g. through physical experiments and embedded programming (high)
-Electric power simulation systems such as Real-Time Simulators and Hardware-In-the-Loop (HIL) (medium)
-Cloud-based database systems, data workflows, and maintenance of open-source analysis tools (medium)
-Power engineering including Phasor Measurement Units and Real-Time -Automation Controllers (low)
-Distributed communications including IEEE protocols, security, and synchronous operation (medium)

Appointment durations vary depending on the length of the research project, availability of funding, and level of appointment (Assistant, Associate, or Full). We envision an appointment duration of 4 years total for the construction of the facility. The Project Scientist would be the intellectual lead during the construction and oversee an engineer, two postdocs, four PhD students, and a project manager. During transition to operations, we envision that the Project Scientist would become the director of the facility during operations. The Project Scientist would then have the opportunity to collaborate with partners across the US in proposal writing, experiment execution, and research papers. Since the work will be highly collaborative, excellent communication, team-building, and leadership skills are essential.

Required Qualifications: Doctorate degree or its equivalent. Appointment level depends on academic experience, scholarly achievements, and funding record.

Preferred Qualifications: Postdoctoral or equivalent experience and commitment to independent research and funding, mentoring/training, university and community service, and to building an equitable and diverse scholarly environment.

Salary is commensurate with qualifications and based on published University of California pay scales. Applications (CV, Research Statement, and Cover letter, at minimum) must be submitted to the UCSD on-line application collection system, AP-On-Line Recruit, at: https://apol-recruit.ucsd.edu/JPF02527

The Office of Research Affairs at UC San Diego is committed to academic excellence and diversity within the academic, staff, and student body. All qualified applicants will receive consideration for employment without regard to race, color, religion, sex, sexual orientation, gender identity, national origin, disability, or status as a protected veteran.

Document requirements:
- Curriculum Vitae - Your most recently updated C.V.
- Cover Letter
- Statement of Research
- Statement of Contributions to Diversity - Applicants should summarize their past or potential contributions to diversity. See our Faculty Equity site for more information.

Reference requirements: 3-5 letters of reference required