E-Letter on Systems, Control, & Signal Processing
Issue 373, September 2019

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Welcome to Issue 373 of the CSS E-letter available here.

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

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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.

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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:

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

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

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

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

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

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

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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 64 (2019), Issue 8 (August)

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- Generalized Sarymsakov Matrices Weiguo Xia, Ji Liu, Ming Cao, Karl H. Johansson, Tamer Basar, p. 3085
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- Affine Monotonic and Risk-Sensitive Models in Dynamic Programming Dimitri P. Bertsekas, p. 3117
- Block Decoupling of Boolean Control Networks Yongyuan Yu, Jun-e Feng, Jinfeng Pan, Daizhan Cheng, p. 3129
- Balancing Communication and Computation in Distributed Optimization Albert Berahas, Raghu Bollapragada, Nitish Shirish Keskar, Ermin Wei, p. 3141
- Efficient Simulation Sampling Allocation Using Multi-Fidelity Models Yijie Peng, Jie Xu, Loo Hay Lee, Jian-Qiang Hu, Chun-Hung Chen, p. 3156
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- Finite-Time Cooperative Engagement Tansel Yucelen, Zhen Kan, Eduardo L. Pasiliao, p. 3521

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

IEEE Transactions on Control Systems Technology
Volume 27 (2019), Issue 5 (September)

Regular Papers:

- Robust Backlash Estimation for Industrial Drive-Train Systems—Theory and Validation, D. Papageorgiou, M. Blanke, H. H. Niemann, and J. H. Richter, page 1847
- Identifiability and Parameter Estimation of the Single Particle Lithium-Ion Battery Model, A. M. Bizeray, J.-H. Kim, S. R. Duncan, and D. A. Howey, page 1862
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- Automatic Software and Computing Hardware Codesign for Predictive Control, B. Khusainov, E. C. Kerrigan, and G. A. Constantinides, page 2295
- Hybrid Nonlinear Model Predictive Control of LNT and Urealess SCR Aftertreatment System, Y. Kim, T. Park, C. Jung, C. H. Kim, Y. W. Kim, and J. M. Lee, page 2305

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

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

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

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

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

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

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

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2   Miscellaneous

2.1. IFAC Annual Reviews in Control Paper Prize
  Contributed by: Francoise Lamnabhi-Lagarrigue, francoise.lamnabhi-lagarrigue@l2s.centralesupelec.fr

IFAC Annual Reviews in Control Paper Prize: Call for Nominations for IFAC Annual Reviews in Control Paper Prize: The Prize is given for outstanding contributions to comprehensive and visionary views of the field of Systems and Control, documented in either a survey article (review papers on main methodologies or technical advances), or a vision article (cutting-edge and emerging topics with visionary perspective on the future of the field or how it will bridge multiple disciplines), or a tutorial article (fundamental guides for future studies) published in the IFAC Journal Annual Reviews in Control. In each triennium, one such prize is given, with funds provided by the publisher of Annual Reviews in Control, Elsevier Science Ltd. For this triennium, the Prize will be presented during the Awards Ceremony at the 21st IFAC World Congress, to be held in Berlin, Germany, 12-17 July, 2020.

Eligibility: To be considered for the Annual Reviews in Control Paper Prize, papers must have appeared in Annual Reviews in Control during the three calendar year period: January 2017 through December 2019, that are Volumes 43 until 48. Papers authored by members of the Selection Committee and by Editors of the journal are not eligible.

Nominations: A complete nomination should include:
a) A nomination letter that contains the full title of the paper and name(s) of the author(s), as well as the issue (year, month, number) of Annual Reviews in Control where the paper has appeared.
b) A brief description of the contributions of the paper, and why (in the opinion of the nominator) the paper deserves the prize.

Submission: Nominations should be submitted no later than 1 February 2020, and in electronic form. They should be addressed to:
Prof. Arjan van der Schaft
Chair, IFAC Annual Reviews in Control Paper Prize Selection Committee
University of Groningen, the Netherlands
Email: a.j.van.der.schaft@rug.nl

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

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

EECI-IGSC-2020: the summaries of the courses of the IFAC and IEEE CSS co-sponsored 2020 EECI International Graduate School on Control, a series of 25 independent graduate week modules, are below and the registration will open on October 2019. Deadlines for early registration to the modules M01 to M09 is 12/01/2020 and to the modules M10 to M25 is 08/03/2020.

Program:

https://www.web-events.net/doc/users/395/bib/eeciigsc2020advanceprogrammevf2.pdf

Summaries of the courses:

https://www.web-events.net/doc/users/395/bib/eeciigsc2020summariesvf2.pdf

Registration:

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

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2.3. Free Interactive Controls Textbook App
Contributed by: Zuzana Fabusova, zuzana.fabusova@quanser.com

If you are teaching a control systems course, try the new Experience Controls app developed by Quanser. This free mobile textbook covers control fundamentals in accessible language, uses real-time, dynamic simulations, reviews concepts in mini-lecture podcasts and examples. Instructors get access to comprehensive resources with lecture slides, and practice & exam problem sets. You can use Experience Controls as a main textbook or a supplementary resource in any controls course. Learn more here: http://bit.ly/31ZggG5

Experience Controls can be downloaded on the App Store or Google Play.

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2.4. Software Release: MORLAB 5.0
Contributed by: Steffen W. R. Werner, werner@mpi-magdeburg.mpg.de

Version 5.0 of the MORLAB, Model Order Reduction LABoratory, toolbox has been released. The toolbox is a collection of MATLAB and Octave routines for model order reduction of linear dynamical systems based on the solution of matrix equations. The toolbox contains implementations for standard, descriptor and second-order systems, as well as systems theoretic subroutines.

New core features are:
- model reduction methods for discrete-time standard and descriptor systems
- new matrix equation solvers for dual continuous-time Lyapunov and Riccati equations
- matrix equation solvers for discrete-time Lyapunov, Sylvester and Riccati equations
- frequency and time evaluation and visualization routines for all supported system classes
- computation of projection matrices for model reduction
- parallel computation of different reduced-order models at the same time

For more details on this software, see:

http://www.mpi-magdeburg.mpg.de/projects/morlab

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

The 8th oCPS PhD School on Cyber-Physical Systems

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

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

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

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

The presentations will cover applications domains ranging from flexible manufacturing, automotive and platooning, and smart imaging to smart grids. The program of the school includes four days of lectures, interleaved by enough time slots to allow scientific discussions among the participants and with the speakers. See http://ocps-itn.eu/ocps-fall-school/fall-school-program/ for the complete program.

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

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

Credit points: Doctoral students attending the oCPS Fall school will be awarded with 1 EC. Attendees that present a demo and/or a poster will be awarded 2 EC (registration is needed). The full program of the school, other information and the registration procedure can be found soon at http://ocps-itn.eu/ocps-fall-school/

We welcome you, your students and colleagues to this interesting and inspiring event!

Maurice Heemels
Twan Basten
Dip Goswami
Victor Sanchez
Alberto Bemporad

3 Journals

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

Systems & Control Letters
Volume 130
August 2019

Papers:

- Distributed anti-windup approach for consensus tracking of second-order multi-agent systems with input saturation, Junjie Fu, Yuezu Lv, Tingwen Huang, Pages 1-6
- Minimal positive continuous-time realizations of positive response maps, Zbigniew Bartosiewicz, Pages 7-12
- Fastest mixing reversible Markov chain on friendship graph: Trade-off between transition probabilities among friends and convergence rate, Saber Jafarizadeh, Pages 13-22
- Noise-induced limitations to the scalability of distributed integral control, Emma Tegling, Henrik Sandberg, Pages 23-31
- Co-design of aperiodic sampled-data min-jumping rules for linear impulsive, switched impulsive and sampled-data systems, Corentin Briat, Pages 32-42

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

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3.3. Control Engineering Practice
Contributed by: John Coca, j.coca@elsevier.com

Control Engineering Practice
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3.4. Mechatronics
Contributed by: John Coca, j.coca@elsevier.com

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

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Navid Resalat, Joseph El Youssef, Ravi Reddy, Jessica Castle, Peter G. Jacobs, Adaptive tuning of basal and bolus insulin to reduce postprandial hypoglycemia in a hybrid artificial pancreas, pp. 247-254

3.6. Journal of the Franklin Institute
   Contributed by: John Coca, j.coca@elsevier.com

Journal of the Franklin Institute
Vol. 356, Issue 12
August 2019

Mingxi Ai, Yongfang Xie, Shiwen Xie, Fanbiao Li, Weihua Gui, Data-driven-based adaptive fuzzy neural network control for the antimony flotation plant, pp. 5944-5960

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Jianglong Yu, Xiwang Dong, Qingdong Li, Zhang Ren, Practical time-varying output formation tracking for high-order multi-agent systems with collision avoidance, obstacle dodging and connectivity maintenance, pp. 5898-5926

S. Pezeshki, M.A. Badamchizadeh, A.R. Ghiasi, S. Ghaemi, H-Infinity tracking control for a class of asynchronous switched nonlinear systems with uncertain input delay, pp. 5927-5943

Renming Yang, Liying Sun, Guangyuan Zhang, Qiang Zhang, Finite-time stability and stabilization of nonlinear singular time-delay systems via Hamiltonian method, pp. 5961-5992

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

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IET Control Theory & Applications

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Contributed by: Bing Chu, b.chu@soton.ac.uk

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3.11. CFP: International Journal of Adaptive Control and Signal Processing
  Contributed by: Gang Tao, gt9s@virginia.edu

Special Issue: Adaptive Methods for Resilient Control Systems, International Journal of Adaptive Control and Signal Processing

The goal of this special issue is to show the state-of-the-art in recent developments of advanced control methods using adaptive control and fault-tolerant control techniques to deal with uncertain system faults (including fault induced disturbances), for the recovery of desired control system performance. Papers addressing resilient control related theory, techniques and applications are welcome, and the topics of interest to this special issue include (not limited to):
- Adaptive fault detection and fault-tolerant control for systems with uncertain actuator and sensor faults, structural damage, and actuation and sensing limitations
- Learning control based fault accommodation
- Parameter estimation and auto-tuning based fault tolerant control
- Resilient control of human-in-the-loop systems
- Resilient control techniques for smart grids
- Resilient control techniques for multi-agent systems and communication networks
- Resilient control of autonomous robot systems with uncertain faults
- Resilient cyber physical system design and demonstration
- Resilient flight control under adverse conditions
- Other resilient control theory, techniques and applications

Guest editors:
Professor Gang Tao (gt9s@virginia.edu)
Professor Tansel Yucelen (yucelen@usf.edu)

Initial submission deadline: October 1, 2019

For more information, please visit the journal special issue webpage:
https://onlinelibrary.wiley.com/page/journal/10991115/homepage/special_issues.htm

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

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

The topic of the special issue belongs to multi-objective control design based on quasi Linear Parameter Varying (qLPV) models and Linear Matrix Inequality (LMI) based optimization. The special issue focuses on advanced theories and design solutions based on Tensor Product (TP) model transformation.
Recent research shows that by varying the antecedents and consequents in Takagi-Sugeno fuzzy models as well as in other polytopic models, one can strongly influence how the further control design steps will proceed and also how good the resulting control performance will be. The TP model transformation is capable

of deriving alternative antecedents and consequents, and of varying and combining the inputs of multiple TS fuzzy and polytopic models. The aim of this special issue is to investigate how better controllers can be obtained by using the best variant of TS fuzzy or polytopic models, and how such variants can be found by TP model transformation. Papers about further developments on the TP model transformation are also highly welcome.

Guest Editors:
Prof. Péter Baranyi
Budapest University of Technology and Economics, Hungary
prof.peter.baranyi@gmail.com

Prof. Yeung Yam
Chinese University of Hong Kong, Hong Kong SAR, China
yyam@mae.cuhk.edu.hk

Important Dates:
December 30, 2019 Deadline for Submissions
March 31, 2020 Completion of First Review
May 31, 2020 Completion of Final Review
August 31, 2020 Receipt of Final Manuscript
January, 2021 (Tentatively Vol. 23, No. 1) Publication

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

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

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4 Conferences and Workshops

4.1. CDC Workshop: Resilience and Controllability of Large Systems, France
Contributed by: Mohammad Pirani, pirani@kth.se

CDC Workshop: Resilience and Controllability of Large Scale Systems: A Network-Theoretic Approach

Large-scale systems play a central role in a multitude of applications, from power grids and smart buildings to aerospace systems, swarm robotics, social networks, and intelligent transportation systems. As the scale of networked control systems increases and interactions between different subsystems become more sophisticated, questions of controllability, observability, and resilience of such networks increase in importance. The need to redefine the classical system and control-theoretic notions into the language of networks has recently started to gain attention as a fertile and important area of research. A key challenge for the controls community is thus to understand how to leverage network theory along with systems and control to analyze the controllability, observability, and resilience of large-scale interconnected systems.

The IEEE Conference on Decision and Control, as one of the premier annual gatherings of researchers in the field of systems and control, is a perfect venue for a workshop on network-theoretic approaches to controlling large scale systems. The goal of this workshop is to present the challenges in this area, together with tools and approaches that have been recently developed to address this problem. In particular, the key emphasis of this workshop will be on the use of graph-theoretic approaches to large-scale systems analysis, which will differentiate it from other workshops on control and security of centralized systems.

The target audience is students, researchers and practitioners from academia and industry who are interested in learning about (and contributing to) the emerging field of network control systems. The workshop will be highly interactive and will feature tutorial-style talks by leading experts in the field, giving the audience a perspective of how network theory plays a role in the resilience and control of large scale systems, and how to best combine different perspectives to develop efficient, reliable and resilient systems.

4.2. CDC Workshop: Model Predictive Control of Hybrid Systems, France
Contributed by: Berk Altın, berkaltin@ucsc.edu

CDC '19 Workshop on Model Predictive Control of Hybrid Dynamical Systems, France
Pre-Conference Workshop at the 2019 IEEE Conference on Decision and Control
Nice, France
Dec. 10, 2019

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

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

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

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

4.3. CDC Workshop: Uncertainty Synthesis, France
Contributed by: Panagiotis Tsiotras, tsiotras@gatech.edu

2019 IEEE CDC Half-Day Workshop on Uncertainty Synthesis
December 10, 2019
Website: http://uncertainty-synthesis-workshop.ae.gatech.edu/
Organizers: Efstathios Bakolas (Univ. of Texas at Austin); Yongxin Chen (Georgia Institute of Technology); Tryphon Georgiou (Univ. of California, Irvine); Panagiotis Tsiotras (Georgia Institute of Technology)

Invited Speakers
Tryphon Georgiou Univ. of California, Irvine
Abhishek Halder, University of California at Santa Cruz
Robert Skelton, Texas A&M University
Panagiotis Tsiotras, Georgia Institute of Technology
Haomin Zhou, Georgia Institute of Technology

Summary: All dynamical systems are prone to exogenous disturbances, and the uncertainty introduced by these exogenous disturbances propagates along with the system states. More often, the amount of uncertainty in the system grows with time as the system evolves and, consequently, controlling the uncertainty is of paramount interest to maintain a certain level of performance. This is especially true when one needs to design optimal controllers, which are known to be susceptible to modeling errors. Recent advances have it possible to directly quantify and control the uncertainty of a dynamical system. Controlling the uncer-

tainty of a dynamical system implies the ability to control the state distribution over time, a problem that has many applications, including image segmentation, ensemble and swarm control, control of particle beams, neuronal ensembles, and many others — in addition to just reducing the uncertainty in a feedback system.

The objective of this workshop is twofold: the first objective is to report on current advances in the area of uncertainty quantification and control to enable resilient and robust operation of dynamical systems and swarms of robots; the second objective is to bring together - in the same room - outstanding researchers from leading institutions who have contributed on this topic over the years.

Registration: http://cdc2019.ieeecss.org/registration.php (advanced rate ends on October 1st)

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

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

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

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

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

4.5. Energy-Open 2019 Workshop Groningen, The Netherlands
Contributed by: Nima Monshizadeh, n.monshizadeh@rug.nl

The Organising Committee has the pleasure of inviting you to participate in Energy-Open 2019 workshop, which will be held on November 7-8, 2019, at the University of Groningen. There is no registration fee, however, due to a limited capacity it is necessary to register via the link:
https://www.eventbrite.com/e/energy-open-2019-tickets-70423623955

Scope: The workshop aims to bring together researchers working on new concepts and solutions supporting the energy transition. Topics of interest include, but are not limited to Decentralized energy management, Mathematical models in power systems, Control of storage in smart grids, Optimization and control algorithms for power grids, Power quality in distribution grids, Prediction algorithms of renewable generation, Legislation for energy transition, and User behaviour.

Program: The workshop will be single track and will feature plenary presentations, contributed talks, and/or poster sessions. The keynote speakers are:

- Ioannis Lestas, University of Cambridge, UK
- Maria Prandini, Politecnico di Milano, Italy
- Johannes Schiffer, Brandenburg University of Technology, Germany
- John Simpson-Porco, University of Waterloo, Canada
- George Weiss, Tel Aviv University, Israel
- Bert Zwart, TU Eindhoven, Netherlands

4.6. International Conf. on Mechatronics Robotics and Systems Eng., Indonesia
Contributed by: Tua Tamba, ttamba@unpar.ac.id

2019 International Conference on Mechatronics, Robotics and Systems Engineering (MoRSE 2019)
Date/Location: 4-6 December 2019 / Bali - Indonesia
Technical Co-Sponsor: IEEE Indonesia Section CSS/RAS Joint Chapter
Website: https://morse.unpar.ac.id/
Paper submission is opened until 21 September 2019 (visit http://edas.info/N26473)

MoRSE conference 2019 is an international conference which covers recent advances and development in the areas of Mechatronics, Robotics and Systems Engineering. We invite students, researchers, scientists and engineers from research/educational institutions and industries to submit manuscripts related to the area of Mechatronics, Robotics, and Systems Engineering. Accepted and presented papers will be submitted for publication in IEEE Xplore Digital Library (Part #: CFP19MOR-ART, ISBN: 978-1-7281-3984-5).

Plenary Speakers (to be updated regularly):
- Prof.Joris De Schutter (KU Leuven, Belgium)
- Dr. Agus Budiyono (Vice Chairman, Indonesia Center for Technology Empowerment)

Venue: Bali, known worldwide as The Island of God, is one of the world's most popular island holiday

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

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

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4.7. IFAC World Congress, Germany
Contributed by: Uwe D. Hanebeck, Uwe.Hanebeck@kit.edu

21st IFAC 2020 World Congress (IFAC WC 2020), July 12 - 17, 2020, Berlin, Germany, www.IFAC2020.org
Key Dates:
15 September 2019 Open invited track proposals
15 October 2019 Invited session proposals
31 October 2019 Draft manuscript submission
28 February 2020 Late breaking results submission

The IFAC World Congress is IFAC's flagship conference and is held every three years. The IFAC WC 2020 will take place July 12 - 17, 2020 in Berlin Germany. It is time to prepare your submissions and participation. With several thousand attendees from all over the world, the IFAC World Congress is the biggest and most important meeting of this kind. For six days in 2020, Berlin will be the place where new collaborations and stimulating ideas from theory development, over academic and industrial applications, to technology development and further fields can originate, in and after the sessions.

Berlin – Where Innovation Meets Science and Culture:
Germany's capital is a vibrant cosmopolitan city, offering a wide range of cultural and touristic attractions. Berlin is a green city, with rivers and canals, and is particularly enjoyable in summer time. Berlin has a long tradition of science and innovation. It is the city where Alexander and Wilhelm von Humboldt, Max Planck, Gustav Hertz, Albert Einstein, and many others lived and worked. Berlin is among the most important and diverse regions of science within Europe. It has the largest concentration of universities and research institutes within Germany and a student population of about 200,000.

Conference Venue:
IFAC WC 2020 will be held in the Estrel Hotel and Congress Center situated in the Neukölln district of Berlin, easily accessible by public transportation. Neukölln is a rapidly evolving lively neighborhood attractive for students and artists, with uncountable cultural and culinary attractions.

The motto of the 21st IFAC World Congress is "Automatic Control – Meeting Societal Challenges". It focuses on current and future societal challenges such as mobility and transportation, health care and medicine, the delivery of sustainable resources and green energy, digitalization, Industry 4.0, and the dramatic changes in the working environment. The junction of artificial intelligence and control will be spotlighted. This is reflected in five topics days, where the standard conference program is complemented by special keynotes, tutorial sessions, outreach lectures, and exhibitions by industrial/technological leaders.

Oral, Interactive, and Demonstrator Contributions:

Oral sessions consist of six contributions of 20 minutes. Contributions in interactive sessions will take place during two hour session slots. All contributions undergo the same review process and the decision on the format is not implied by the review outcome. Demonstrator contributions will either be part of interactive sessions (for video or software demonstrators) or demonstrators' exhibitions.

Tutorials and Pre-Congress Workshops:

You are invited to submit proposals for tutorials and pre-congress workshops. Both tutorials/workshops should inform participants about the state of the art in specific areas of interest to the IFAC community.

Late Breaking Results:

Extended abstract contributions spotlight work in progress, application-oriented contributions to industrial, economic or social fields, and cutting edge research from other scientific communities. Extended abstract contributions will appear only in the congress preprints, not in the proceedings of the congress.

Invited Sessions and Open Invited Tracks:

Invited sessions consist of six regular papers or one survey paper/four regular papers based on invitation by the organizers. Open invited tracks have no limit on the number of papers, organizers are expected to solicit contributions, and the proposal is advertised on the IFAC 2020 website.

Technical Areas:
- Systems and Signals
- Design Methods
- Computers, Cognition and Communication
- Mechatronics, Robotics and Components
- Manufacturing and Logistics Systems
- Process and Power Systems
- Transportation and Vehicle Systems
- Bio- and Ecological Systems
- Social Systems

Congress Core Team:

Klaus Janschek Coordinating Chair
Frank Allgöwer IFAC President
Sandra Hirche IPC Co-Chair
Rolf Findeisen IPC Co-Chair
Ulrich Jumar Industry Chair
Jörg Raisch Local Arrangements Chair
Uwe D. Hanebeck Publicity and Outreach Chair
Dagmar Dirzus Finance Chair
Silke Nienhausen Congress Officer

IFAC 2020 contact: info@ifac2020.org

4.8. NSF Workshop on Power Electronics-Enabled Power Systems, USA
Contributed by: Qing-Chang Zhong, zhongqc@ieee.org

NSF Workshop on Power Electronics-enabled Operation of Power Systems McCormick Tribune Campus Center, Illinois Institute of Technology, Chicago, USA October 31 – November 1, 2019

Application to attend the workshop:
http://peac.iit.edu/events/nsf-workshop-on-power-electronics-enabled-operation-of-power-systems/

Deadline for application to attend the workshop:
- with financial support requested: September 30, 2019, 8:00 am Central Time (US and Canada)
- without financial support requested: October 15, 2019, 8:00 am Central Time (US and Canada)

Power systems worldwide are going through a paradigm shift. Millions of distributed energy resources (DER) are being connected to power systems, which imposes unprecedented challenges to grid stability, reliability, security, and resiliency. Recent research has shown that it is promising to seamlessly integrate expertise in control systems, power electronics, and power systems to achieve power electronics-enabled operation of power systems to address these issues. This workshop will invite 50 participants from funding agencies, regulatory commissions, utilities, think-tanks, vendors, and universities etc. to offer multidisciplinary perspectives on the paradigm shift of power systems and identify the associated challenges and needs, and potential tools and methodologies. Recommendations will be made after the workshop. This will help speed up the paradigm shift of power systems, improve the stability, reliability, security, resiliency of future power systems, promote sustainability, create jobs, and stimulate economic growth.

The objective of this NSF workshop is to bring experts from control systems, power electronics, and power systems together to identify fundamental challenges and needs in multidisciplinary research and education in control of power electronics-enabled power systems for enhanced grid stability, autonomy, scalability, operability, reliability, security, and resiliency; strengthen collaborative efforts to tackle the challenges identified; and raise the awareness of funding agencies and policy-makers to support and nurture research and educational activities to advance fundamental knowledge, enabling technologies, and workforce in this area. This 1.5-day workshop will consists of panels, keynote talks, short talks, and tours to the Illinois Tech Microgrid and the Illinois Tech SYNDEM Smart Grid lab.

For those who request financial support, the Organizing Committee will determine whether there will be financial support offered based on the following criteria: 1) the order of the application, 2) the relevance of the applicant's research to the workshop theme and objectives, and 3) the diversity of participants. The decision of the Organizing Committee is final and the participants who are offered financial support are required to adhere to the guidelines of NSF, e.g., NSF Special Terms and Conditions for Administration of NSF Conference or Travel Grants (FL 26).

Join us via clicking the link below
http://peac.iit.edu/events/nsf-workshop-on-power-electronics-enabled-operation-of-power-systems/

5 Positions

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

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

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

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

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

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

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

5.2. PhD: IFP Energies Nouvelles, France
Contributed by: Hoai Nam Nguyen, hoai-nam.nguyen@ifp.fr

PhD position at IFP Energies Nouvelles (IFPEN) in Machine Learning, Wind Energy, Automatic Control: Design of Real-time Estimation Algorithms for Fault Detection and Control at the Wind Farms Scale

In the field of wind energy, operators are now focusing on using existing wind farms more efficiently, reducing farm-level mechanical stress and reducing maintenance costs through improved fault detection. In this context, our central question will be "How to design an algorithm capable of optimally and robustly estimate the wake and the wind field properties in real-time at the wind farm scale?". These estimations will make it possible to design improved fault detection algorithms, as well as farm-level load distribution controls. Classical centralized estimation approaches are unfortunately unable to address such a question due to the inaccuracy in the estimations and the high computational burden.

To address our problem, we will rely on the theoretical tools of machine learning and advanced estimation methods. The machine learning paradigm makes it possible to adapt itself to create an increasingly robust and reliable model of the studied phenomena based on observations. The interest is to learn information from the uncertain and fluctuating environment. In particular, the Gaussian process approach shows good potential in terms of performance and ability to learn from a large amount of data. This research work will greatly support the developments of the next generation of the IFPEN industrial solutions for wind estimation.

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

For more information or to submit an application contact the IFPEN supervisor at recruit.postdoc@ifpen.fr

5.3. PhD: TU Delft, The Netherlands
Contributed by: Riccardo Ferrari, r.ferrari@tudelft.nl

2 PhD positions at TU Delft on Fault diagnosis and fault tolerant control of offshore wind farms.
Delft Center for Systems and Control (DCSC), Delft University of Technology, The Netherlands.

I am looking for 2 talented, outstanding PhD candidates with an M.Sc. degree (or close to completion) in Systems and Control, or Applied Mathematics, Electrical or Mechanical or Aerospace Engineering, or related field, with theoretical background and interest in Fault Diagnosis, and/or Fault Tolerant Control, Wind Energy, Structural Health Monitoring, and with good command of the English language (knowledge of Dutch is not required).

General project description: The candidate will conduct theoretical and applied research on offshore wind farms subjected to faults and structural degradation, in particular due to corrosion. The research will develop tools for modelling the dynamic behaviour and the failure mechanisms of offshore wind turbines, for estimating their current health level and for implementing load limiting control algorithms that take into account the health status of single turbines while maximising the wind farm total power production. Such algorithms will be tested in simulation, on scale models and on actual offshore test sites.

The position is in the context of the research project "O&M tools integrating accurate structural health in offshore energy" (WATEREYE), funded by the European Commission under the call H2020-LC-SC3-2019-RES-TwoStages.

Conditions of employment: The PhD appointment will be for 4 years. The PhD students 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. Assistance with accommodation can be arranged.

Applications shall include the following documents:
• curriculum vitae;
• statement of motivation and research interests (up to two pages);
• 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 three research-oriented documents (e.g. thesis, conference/journal publication).

Applications or inquires shall be emailed to Dr. Riccardo Ferrari (r.ferrari@tudelft.nl). The expected starting date is November 1st. The call for applications will remain open until the ideal candidates are found. More information: r.ferrari@tudelft.nl,
http://www.dcsc.tudelft.nl/~riccardoferrar.

5.4. PhD: University of Nebraska-Lincoln, USA
Contributed by: Piyush Grover, piyush.grover@unl.edu

PhD: University of Nebraska-Lincoln, positions in Nonlinear Dynamical Systems and Control

Multiple doctoral positions are available in the newly established Dynamical Systems Lab (DSL) in the Mechanical and Materials Engineering (MME) Department at University of Nebraska-Lincoln (UNL). Applicants should hold a BS or MS in Mechanical/Aerospace/Civil Engineering, Physics or Mathematics. DSL is an interdisciplinary lab, and our aim is to use nonlinear dynamics methods for analysis, design and control of large-scale multi-agent systems including swarm robotics (mean-field games, mean-field control, optimal transport), active fluids (microfluidic swarms), and metamaterials (energy transfers in nonlinear media). Opportunities exist for theoretical, computational and experimental work. More information is available on this link: https://engineering.unl.edu/mme/faculty/piyush-grover/

About UNL and MME: University of Nebraska-Lincoln, a member of the 'Big-Ten', is the flagship land grant university of Nebraska. UNL is classified within the Carnegie "R1-Doctoral Universities: Highest Research Activity" category. The MME department has a vibrant, growing program in dynamical systems.

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

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

Description: The successful candidate will develop privacy-preserving mechanisms to ensure user privacy in smart systems such as smart buildings and intelligent transportation systems. The project will include both theoretical and applied components. International applicants will be considered for the Hong Kong PhD fellowship scheme which provides an annual stipend of HK $309,600 (approximately US $39,700) and a conference and research-related travel allowance of HK$12,900 (approximately US$1,700) per year for each awardee for a period up to three years. https://cerg1.ugc.edu.hk/hkpfs/index.html

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

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

5.6. PhD: ETH Zurich, Switzerland
Contributed by: Melanie Zeilinger, mzeilinger@ethz.ch

PhD positions in Safe Learning Control at ETH Zurich

We invite applications for several PhD positions that are part of a larger research program with the goal of enabling learning in high performance control systems that are safety-critical. The successful candidates will join the Institute for Dynamic Systems and Control at the Department of Mechanical and Process Engineering at ETH Zürich under the supervision of Prof. Melanie Zeilinger.

Please see the following link for more details and to apply online: https://bit.ly/2Zn3STm

5.7. PhD: University of Louisiana at Lafayette, USA
Contributed by: Afef Fekih, afef.fekih@louisiana.edu

The Advanced Controls Laboratory at the University of Louisiana at Lafayette, USA has available funding to support a PhD student in the general area of advanced control design/Fault Tolerant Control with application to dynamic systems. Special considerations will be given to students who have a strong background

in power systems such as wind turbines and/or PVs. The successful candidate is expected to have a strong background in control systems theory, and a very good knowledge of power systems. Programming skills in MATLAB/Simulink are required. A genuine interest and curiosity in the subject, excellent oral and written English communication skills are needed.

Applicants shall have a Master's degree or equivalent in systems and controls, power systems, electrical engineering, mechanical engineering, applied Math or a related discipline. The PhD student is expected to carry out original research and complete coursework throughout the period of appointment. Results will be communicated in the form of journal publications, conference presentations, and the PhD dissertation. The funding covers the cost of full tuition and stipends at a competitive rate and will start in Spring 2020. Interested individuals should send their detailed curriculum vitae, copies of their recent transcripts, a copy of their best publication in English, and if applicable GRE/test scores to Dr. Afef Fekih on afef.fekih@louisiana.edu.

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

PhD position in Control Theory, Leibniz University Hannover, Germany

We offer one PhD position at the Institute of Automatic Control at the Leibniz University Hannover, Germany. The project will focus on (economic) model predictive control for uncertain systems. In particular, robust and stochastic MPC schemes shall be developed for which desired closed-loop guarantees can be given. Also, adaptive and learning-based approaches shall be investigated. The project will focus on the development of novel control-theoretic methods which are of relevance in various cutting-edge applications such as robotics, power systems, or autonomous driving.

The position is initially for three years, with the possibility to extend it for one more year. We offer a competitive salary according to the German pay scale TVL-13, including social benefits. The candidate is expected to hold a master's degree in control engineering or a related subject with specialization in control. Very good English communication skills are also required.

Please send your application including a complete curriculum vitae, certificates, and a motivational letter until September 30 to Prof. Matthias Müller, mueller@irt.uni-hannover.de

More information on the position can be found on the webpage www.irt.uni-hannover.de/jobs.html

5.9. PhD: Chalmers University of Technology, Sweden
Contributed by: Paolo Falcone, falcone@chalmers.se

PhD position in 5G-Based Traffic Junction Control for Connected Autonomous Vehicles

We invite applications for one Ph. D. position in Control for Intelligent Transportation Systems. The successful candidate will join a team of post-docs and Ph. D. students, engaged in neighboring research and is expected to contribute to the design of control algorithms for coordinating autonomous vehicles connected

through a 5G communication network. If possible and relevant, the achieved results will be demonstrated through experiments on full-scale vehicles and in collaboration with our industrial partners. The research project is funded by the Walleberg Autonomous Systems Program.

The position is announced at the Mechatronics Group of the Electrical Engineering Department, where we are engaged in both fundamental and applied research related to intelligent transportation systems. Ongoing research projects focus on the design and the experimental validation of control algorithms for connected autonomous vehicles operating in complex urban environments. We consider both cooperative and non-cooperative settings, where the challenge are the cooperative control over wireless networks. Our research is, where possible, validated through experiments on full-scale vehicles and in collaboration with industrial partners.

The working time of a Ph. D. student is mainly devoted to research. Undergraduate teaching duties, not exceeding 20% of the working time, may include supervision of MSc students. Candidates shall have a Master's Degree or equivalent in Electrical Engineering, Engineering Physics, Applied Math or in a related discipline. A successful applicant should have a strong background in control theory and optimization. Programming skills in Matlab are required and in C/C++ are welcome. A genuine interest and curiosity in the subject, excellent oral and written English communication skills are needed.

Apply at https://bit.ly/34e4BoO

5.10. PhD: University of Queensland, Australia
Contributed by: Erkan Kayacan, e.akayacan@uq.edu.au

Fully funded PhD position in Advanced Autonomy for Unmanned Vehicles at the University of Queensland, Australia

Research area and project description: Nowadays, the complexity robotic systems has increased enormously since human beings desire a higher level of intelligence and autonomy. Developed systems must be capable of autonomously adapting to the variations in the operating environment while maintaining to accomplish tasks even in highly uncertain and unstructured environments. Such robotic systems must display the ability to learn from experience, adapt, and seamlessly integrate information to-and-from humans.

The doctoral student will work in the intersection of the areas of robotics and automatic control. We are looking for a qualified and enthusiastic PhD student who wishes to investigate the embedded guidance, control, and navigation algorithms (e.g., model predictive control, adaptive control, and concurrent learning) for unmanned ground vehicles. We aim to leverage the current state-of-the-art autonomy level towards smarter robots, which can learn and interact with their environment, collaborate with people and other robots, plan their future actions, and execute the given task accurately.

Remuneration: A fully-funded PhD position for 3-years (starting January 2020) with the possibility of two 6-month extensions in approved circumstances at the School of Mechanical & Mining Engineering, the University of Queensland, Brisbane, Australia.

- Living stipend scholarship = $27,596 per annum tax-free (2019 rate)
- Tuition scholarship
- Single Overseas Student Health Cover = approx. $4k)

There is potential for successful applicants to earn around $3,000 per annum through assisting in under-graduate teaching. Moreover, students are given financial support to attend an international conference during their PhD.

Eligibility / Selection Criteria:

- A Master's degree in mechanical engineering, electrical engineering, aerospace engineering, computer science/engineering, control theory, mechatronics, applied mathematics, or other related disciplines.
-Strong background in control theory and robotics
-Excellent verbal and writing skills in English with excellent communication skills

Preferred:

- Experience in model-based control theory
- Hands-on experience in robotic systems
- Experience in Robot Operating System (ROS)
- Concrete knowledge in C/C++ or Python
- Demonstration of research activities (conference or journal papers)

How to apply: Applicants will be required to apply for a scholarship through the website below: https://scholarships.uq.edu.au/aauv Please ensure that you 1) select 'I am applying for, or have been awarded a scholarship or sponsorship', 2) enter in the free-text field 'AAUV', 3) list the enrolling unit as the School of Mechanical & Mining Engineering and 4) enter Dr Erkan Kayacan as your supervisor

The application deadline is 28 October 2019, with a starting date of 1 January 2020 or later. The research will be carried out under the supervision of Dr. Erkan Kayacan (https://www.erkank.net). For more detailed info: Dr. Erkan Kayacan (e.kayacan@uq.edu.au).

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

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

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

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

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

5.12. PhD: University of Kentucky, USA
Contributed by: Hasan Poonawala, hasan.poonawala@uky.edu

Ph.D. Position in Learning and Control for Robotics at U. of Kentucky

A Ph.D. position is available beginning Spring 2020 in the Department of Mechanical Engineering at the University of Kentucky, Lexington, KY, USA, on the topic of learning and control for robot autonomy. Our group's focus is on learning models of the robot's dynamics and the dynamics of the environment from sensor data, and controlling the robot's motion using these uncertain learned models.

The position includes a stipend and tuition support, through a teaching assistantship. The offer is valid for two years, and renewable for additional years based on performance of the student.

Qualifications: The applicant must have a strong background in control systems or robotics. Applicants with experience in machine learning (supervised, unsupervised, or reinforcement) or machine perception, with a willingness to grow their knowledge in these areas, are encouraged to apply. The applicant must demonstrate competent programming ability.

Dates: Beginning Spring 2020.
How to apply: Applications should be emailed to Dr. Hasan Poonawala
(hasan.poonawala@uky.edu) , as soon as possible. Please include a CV, PDFs of relevant publications, and names of at least two references.

5.13. PhD/Postdoc: City University of New York, USA
Contributed by: Hao Su, hao.su@ccny.cuny.edu

PhD Students, Intern, and NIH-affiliated Postdoc Positions: Wearable/Legged Robots at City University of New York

NIH Clinical Center and The Biomechatronics and Intelligent Robotics Lab at the City University of New York (CUNY), City College (haosu-robotics.github.io) is seeking one post-doc fellow (available now) with Mechanical Design OR Dynamics/Control expertise in the areas of wearable robots or legged robots. The postdoc position is in New York City and jointly affiliated with CUNY and National Institutes of Health

(NIH). The lab is comprised of 2 postdocs and 4 PhD students. We won the Toyota Mobility Challenge Discovery Award, TechSAge Design Competition finalist, and $50K NYC Zahn entrepreneurship competition. The selected candidate will join a multidisciplinary research team to study high-performance motors, design soft wearable robots, and legged robots in collaboration with CMU, Cornell University, and several top medical schools in the United States. This is a great opportunity to pioneer research in a new generation of wearable, legged, and soft robot platforms to publish high-impact papers alongside several PIs who have expertise in mechatronics, computer vision, and machine learning.

Postdoc Qualification:
- PhD in Mechanical Engineering, Robotics, Electrical Engineering, or related areas
- Mechanical design of wearable robots, soft robots, humanoid, or legged robots. Experience in actuator design, cable transmission, hydraulics, or pneumatics is a plus
- Control of wearable robots, soft robots, humanoid, or legged robots (applied control instead of control theory)
- Strong hands-on experience in Mechatronics
- Strong interpersonal and organizational skills needed to participate as a creative member of a growing research team.

PhD students can be admitted in 2020 spring. PhD students will receive tuition scholarship and stipend support. Students are required to have GRE and TOEFL (or IELTS) before admission. Interns need to commit at least 3-month research in the lab and will receive stipend support.

** About the lab and City University of New York **
The Biomechatronics lab is a 1500 sq. ft. facility with the latest generation motion capture system, humanoid platforms, state of the art physiology measurement devices, cameras, IMUs, high-performance motors, and more. The lab is a vibrant workplace; students can work on a diverse set of projects, conduct hands-on experiments, and publish high-quality papers. The candidates can work with our Zahn Innovation Center, a startup incubator that has helped create $6M in startup revenue and over 100 internships for students. They can also work with the New York Center for Biomedical Engineering, a consortium of New York City medical research institutions established in 1994 to serve as a focal center for collaborative biomedical engineering research in the New York metropolitan area. Partner institutions include Columbia University, Hospital for Special Surgery, New York University, and Memorial Sloan-Kettering Cancer Center. Located in Manhattan, CCNY is as diverse, dynamic, and visionary as New York City itself.

Applications (assembled as a single PDF file) should contain a CV, a list of publications, and copies of up to four scientific papers. Applications should be emailed to Prof. Hao Su (hao.su at ccny.cuny.edu).

Hao Su, Ph.D.
Assistant Professor, Director, Lab of Biomechatronics and Intelligent Robotics
Department of Mechanical Engineering
City University of New York, City College
Steinman Hall
275 Convent Avenue New York, NY 10031
Web: haosu-robotics.github.io

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

Post-Doctoral Position in V&V and Reachability Analysis for Nonlinear and Hybrid Systems at Georgia Tech

A postdoctoral position is available immediately with the Dynamics and Control Systems Laboratory at the School of Aerospace Engineering at Georgia Tech in the general area of reachability analysis for nonlinear and hybrid systems.

Of particular interest are the following areas:
- Validation and verification using reachability tools
- Optimal control for nonlinear and hybrid systems
- Formal methods for software verification and validation

The successful candidate should have a PhD degree in Engineering, Mathematics or Computer Science, with a demonstrated record of publications in this area. 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, Georgia Institute of Technology, Atlanta, GA 30332-0150 USA, Email: tsiotras@gatech.edu

5.15. Postdoc: Harvard University, USA
  Contributed by: Frank Doyle, frank_doyle@seas.harvard.edu

Postdoc opening on the following project: Multi-omic studies towards the identification of robust biomarkers for Post Traumatic Stress Disorder

The aims of this Army-funded study are identifying, validating and characterizing blood-based diagnostic biomarkers for post-traumatic stress disorder (PTSD). Harvard is part of a collaborative consortium of researchers that includes NYU, UCSF, Mt. Sinai School of Medicine, the Institute for Systems Biology, and the Army Center for Environmental Health Research. At Harvard, the team continues to work on (i) optimizing the panel of heterogeneous (multi-omics) markers for diagnosing PTSD, (ii) identifying dysregulated subnetworks that are related to glucocorticoid receptor regulation and Fc epsilon R1 signaling in PTSD based on changes in DNA methylation patterns, (iii) constructing, validating and characterizing polygenic risk profiles for PTSD, and (iv) identifying mechanisms underlying metabolic dysfunction in PTSD with a network based mathematical modeling using correlational and causal analysis.

In the next phase of the project, in addition to refinement and further validation of these results on larger independent cohorts, we aim to characterize their properties by investigating the impact of comorbidity, demographic factors, and symptom severity range on biomarker performance. We also plan to enhance and refine (for example, by focusing on subsets of features or updating parameters) the panels as necessary with the ultimate goal of building a robust PTSD diagnostic biomarker panel.

Interested candidates should contact Claire Van Strien cvanstrien@seas.harvard.edu for application instructions.

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

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

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

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

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

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

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

5.17. Postdoc: Maynooth University, Ireland
Contributed by: Subhrakanti Dey, Subhra.Dey@mu.ie

Post-doctoral position at Maynooth University, Ireland on Estimation and Control over Networks

The Hamilton Institute at National University of Ireland (Maynooth) is seeking a highly motivated post-doctoral researcher with an outstanding record of research in the general area of networked control systems (i.e. control under communication and networking induced constraints), and statistical detection and estimation over sensor networks. The successful applicant will have a PhD before the start of employment and will conduct research under the supervision of Prof Subhrakanti Dey at the Hamilton Institute . The subject area of research is broadly within the area of control and signal processing over sensor networks (including energy harvesting sensor networks), and will include design and analysis of detection, estimation and networked control algorithms, in particular, with a view to enhancing security and energy-efficiency of wireless sensor and actuator networks deployed in smart industrial automation, intelligent transportation systems, and advanced healthcare systems. The post will run for 24 months.

Further information regarding the position can be found at
https://www.jobs.ac.uk/job/BUB335/post-doctoral-researcher-control-and-signal-processing-over-sensor-networks
or by writing to Prof Subhrakanti Dey at Subhra.Dey@mu.ie

5.18. Postdoc: University of Texas at Dallas, USA
Contributed by: Reza Moheimani, Reza.Moheimani@utdallas.edu

Postdoctoral research associate/scientist position at UT Dallas A postdoctoral research associate/scientist position is available for joining an established interdisciplinary research group based in the Laboratory for Dynamics and Control of Nanosystems at the University of Texas at Dallas. This three-year project is funded by Department of Energy and aims to investigate control problems related to high-throughput atomically precise manufacturing systems. The successful candidate will have the opportunity to participate in a host of theoretical and experimental projects, supervise graduate and undergraduate researchers, write reports and manuscripts, attend international conferences, prepare proposals and work closely with collaborating groups.

The applicant should have (or be close to completing) a Ph.D. in Electrical Engineering, Mechanical Engineering, or a closely related field. They should have a strong analytical background, be familiar with advanced control design methods and have had experience with real-time control implementation for laboratory or full-scale mechatronic systems. The position is available immediately and includes a competitive salary and fringe benefits package. Interested applicants should contact Dr. Reza Moheimani at Reza.Mohiemani@utdallas.edu with a detailed CV including a list of publications and names and contact details of three references.

5.19. Postdoc: University of Cape Town, South Africa
Contributed by: Edward Boje, edward.boje@uct.ac.za

PostDoc: University of Cape Town: Continuous-Discrete State Estimation

The University of Cape Town is inviting applications for a limited number of URC Postdoctoral Research Fellowships to be taken up at the University during 2020. For details of eligibility, please see

https://www.uct.ac.za/main/research/postdoc-research-fellowships/fellowships-offered.

I would like to invite a recent (post June 2015) PhD graduate with an excellent record who is interested in making advances in continuous-discrete time state estimation with application to large scale, stiff systems to apply for this fellowship. If you would like to apply for the fellowship, please email me at edward.boje@uct.ac.za before 6 September to indicate your interest and background in the topic, and to confirmation of your eligibility. Please include a short (2-page) resume.

5.20. Postdoc: University of Pennsylvania, USA
Contributed by: James Weimer, weimerj@seas.upenn.edu

Postdoctoral Research Positions in IoMT/MCPS at PRECISE Center
School of Engineering and Applied Science
University of Pennsylvania
http://precise.seas.upenn.edu/

The PRECISE center at University of Pennsylvania is seeking applications for postdoctoral researchers to work on the projects in the Internet of Medical Things (IoMT)/Medical Cyber-Physical Systems (MCPS). The projects are aimed to develop smart alarms to mitigate alarm fatigue, data-driven medical decision support systems, anomaly detection, patient-fall prediction, closed-loop MCPS and human-in-the-loop MCPS, and also to enhance the medical-device interoperability platform being developed at PRECISE. Researchers with an interest and experience in data analytics, machine learning, hybrid and control systems, physiological modelling, IoT, middleware/edge computing, and tool development are encouraged to apply.

Positions are offered for the initial period of one year, with an option to renew for subsequent years. Positions will be available until qualified candidates are found. A competitive salary will be offered.

Please email a complete CV including a research statement to Insup Lee (lee@cis.upenn.edu) and James Weimer (weimerj@cis.upenn.edu).

5.21. Postdoc: Umeå University, Sweden
Contributed by: Leonid Freidovich, leonid.freidovich@umu.se

The department of Applied Physics and Electronics at Umeå University is announcing a postdoc position in control systems and AI for robotic applications.

The primary goal of the project is to develop machine-learning-inspired methods for robotic manipulations without firm grip. Possible applications are in automating various tasks requiring either satisfying unilateral constrains, due to interactions with an environment, or non-prehensile (like juggling or pushing) manipulating an object.

For details and to apply, please visit https://bit.ly/34c6SRc

5.22. Postdoc: Chalmers University of Technology, Sweden
Contributed by: Balazs Kulcsar, kulcsar@chalmers.se

Postdoctoral position in stochastic traffic networks

Chalmers University of Technology is located in Gothenburg on the scenic west coast of Sweden. The research environment is international and English is the working language. The project below is a joint work between two Divisions. The Division of Applied Mathematics and Statistics at the Department of Mathematical Sciences at Chalmers University of Technology and the University of Gothenburg and the Division of Systems and Control at the Department of Electrical Engineering at Chalmers University of Technology invite applications for one 1+1 year postdoctoral position (full time temporary employment) starting January 1, 2020 but preferably asap. The candidate will be offered a one-year employment at the Department of Mathematical Sciences followed by a one-year employment at the Department of Electrical Engineering. The project is funded jointly by CHAIR (Chalmers AI Research) and Transport Area of Advance.

Information about the research: Understanding efficiency and behavior aspects in partially automated (vehicular) technology in large-scale (traffic) context is an unsolved problem nowadays. Our main goal is to develop learning methods for uncertain traffic networks. We will rely on interdisciplinary approaches that combine mathematical sciences and traffic flow theory with traffic safety analysis. We propose to use deep neural networks fed by data from real measurements and/or microscopic traffic simulators to learn how to change parameters and how to solve stochastic partial differential equation (SPDE) based network models. Our ultimate goal is to learn network parameters and predict short time network behavior.

Major responsibilities: You are expected to pursue a vigorous research program, publish results in a sparking and collaborative environment.You may be part of grant application. The appointment offers great opportunities to qualify for further positions within academia/industry as we have numerous ongoing collaborations with the leading groups. During the employment at the Department of Mathematical Sciences, we offer you the possibility that up to 20% of your work may be spent on teaching, supervision.

Position summary: Full-time temporary employment (not scholarship). The position is limited to a maximum of two years (1+1).

Qualifications requested: You should have a Ph.D. in Applied Mathematics, Mathematical Statistics, Control, Computational Science, Transportation, possibly in Physics, or equivalent.

Your educational background should (partially) include some courses in modeling, traffic theory, control, and programming. In addition, you should have understanding on optimization, learning algorithms, and numerical analysis of PDEs, SPDEs. Ability to initiate new research collaborations is essential. Good communication skills in oral and written English are required. Excellent presentation skills, and fluency in English are required. Interest or experience with reinforcement learning, as well as previous experiences in research, publications, and teaching are advantageous.

Application deadline: September 22nd, 2019. The application should be marked with Ref 20190450 and written in English. The application should be sent electronically: https://bit.ly/322cvzE

5.23. Postdoc: Southern University of Science and Technology, China
Contributed by: Wei Zhang, zhangw3@sustech.edu.cn

Joint Postdoctoral Research Fellow Positions in Robotics at SUSTech and SNU Two joint postdoctoral research fellow positions are available at the Robotics Institute of Southern University of Science and Technology (SUSTech). The postdocs will be co-advised by Prof. Wei Zhang at SUSTech and Professor Frank Park at Seoul National University (SNU).
http://www.wzhanglab.site/
http://robotics.snu.ac.kr/html/sub01_03.php

We are looking for highly motivated candidates capable of making key contributions in control and learning theory for robotics. In addition to robotics, the candidates are expected to have a strong background in one or more of the following areas:

- Systems and control
- Optimization
- Machine learning
- Mechatronics
- Applied mathematics with a desire to apply these tools to practical robotics applications.

Depending on the candidate's background, the position can involve basic or applied research related to legged robots, underwater robots, or robotic manipulators. We have excellent facilities and resources to perform real robotic experiments (e.g. Minitaur, Laikago, and a high performance quadruped robot built in-house; robotic fish, ROV and other underwater robots; Kuka LBR iiwa and other collaborative robots, and many other robotic systems).

The position will involve spending time at both SUSTech and SNU, with opportunities to visit/collaborate with other world-leading research groups in control and robotics, and many robotics companies in the Shenzhen area.

Salary is internationally competitive. Excellent candidates will directly be considered for appointment to a research assistant professor position at SUSTech. Most candidates will also benefit from the Peacock Plan of Shenzhen ($\geq$1.6M CNY compensation without tax; see http://www.gaoxinbutie.com/haiwairencai/for further details).

Interested applicants should send their application package to clearlab@sustech.edu.cn. The package should include (1) cover letter, (2) CV, and (3) two selected recent research publications. The search will continue until the positions are filled.

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

Post-Doc Position on Traffic models in large-scale urban networks Gipsa-lab is a CNRS research unit joint with Grenoble-INP (Grenoble Institute of Technology), and Université Grenoble Alpes (Grenoble Alpes

University). It has agreements with INRIA, Observatoire des Sciences de l'Univers de Grenoble. With 350 people, including about 150 doctoral students, Gipsa-lab is a multidisciplinary research unit developing both basic and applied researches on complex signals and systems. Gipsa-lab is internationally recognized for the research achieved in Automatic Control, Signal and Images processing, Speech and Cognition. The research unit develops projects in the strategic areas of energy, environment, communication, intelligent systems, Life and Health and language engineering.

Thanks to the research activities, Gipsa-lab maintains a constant link with the economic environment through a strong partnership with companies. Gipsa-lab staff is involved in teaching and training in the various universities and engineering schools of th e Grenoble academic area (Grenoble Alpes University). Research is achieved in Gipsa-lab thanks to 12 research teams organized in 3 departments : Automatic control, Images-signal, Speech-cognition. Gipsa-lab regroups 150 permanent staff and around 250 no-permanent staff (Phd, post-dotoral students, visiting scholars, trainees in master).

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

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

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

Field tests and other realistic simulations to validate the theory will be performed using the equipment available at the Grenoble Traffic Lab center (see GTL), that is currently being extended at the level of city-center of Grenoble (GTL-Ville project) where we are collecting traffic related data and constructing a real-time data-collection systems. The algorithms developed in this work, will be integrated into the GTL-Ville project. Experiments that cannot be realized in vivo, will be tested on a microscopic traffic simulator replicating the full complexity of the Grenoble urban network.

To apply, please click on the following link:
https://emploi.cnrs.fr/Offres/CDD/UMR5216-ALLBEL-015/Default.aspx

5.25. Postdoc/Research Engineer: Nanyang Technological University, Singapore
Contributed by: Rong Su, rsu@ntu.edu.sg

4 postdoc positions and 2 research associate/engineer positions available on V2X-backed Traffic Management at Nanyang Technological University Candidates for four research fellow positions and two research associate/engineer positions are sought for my project on V2X-Enabled Traffic Analysis and Smart Traffic Signal Control for Large Traffic Networks. Research topics will range from data analytics, traffic simulation and prediction to traffic signal control and vehicle control for public buses/on-demand mobility, urban platooning and emergency handling. Research fellows are expected to hold PhD degrees in relevant fields, e.g., data analytics, machine learning, systems and control, and optimization. The Research Associate is expected to hold a master degree, and Research Engineer is expected to hold a bachelor degree, both in software engineering or computer science, specialized in software development. Past experiences in traffic analysis/control/simulation will be a plus.

The first contract will be one-year and may be renewed up to three years. The remuneration package will be competitive depending on the candidate's qualification, which includes a base salary plus an annual performance bonus and a health insurance package. Any interested candidate may send your detailed CV containing your publication record (whenever applicable) plus the contact information of at least two referees to Dr Rong Su at rsu@ntu.edu.sg. Only shortlisted candidates will be contacted afterwards.

Dr Rong Su
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Tel. +65 6790-6042, Email: rsu@ntu.edu.sg
Homepage: www.ntu.edu.sg/home/rsu

5.26. Postdoc/Scientist: King Abdullah University of Science and Technology, KSA
Contributed by: Jeff Shamma, jeff.shamma@kaust.edu.sa

The Robotics, Intelligent Systems, and Control lab (RISC) at the King Abdullah University of Science and Technology (KAUST) invites applications for two positions:

1) Multi-robot systems with experience in robotic testbeds or human-robot interaction.
2) Intelligent infrastructure with applications such as energy, transportation, water resources, or agriculture.

The positions are at the level of postdoctoral fellow or research scientist, depending on the experience of the applicant.

Prospective applicants should contact Prof. Jeff Shamma (jeff.shamma@kaust.edu.sa) with the following information in pdf format:
1. A current CV
2. A statement of prior research experience and future interests
3. Contact information for at least two references.

General information about campus life at KAUST may be found online at https://www.kaust.edu.sa/en/live.

5.27. Faculty: Center for Research and Advanced Studies, Mexico
Contributed by: Wen Yu, yuw@ctrl.cinvestav.mx

The department of Automatic Control at the Center for Research and Advanced Studies (CINVESTAV-IPN) in Mexico City has one position for a full-time researcher to be filled from January 1, 2020.

Candidates are required to have PhD degree in automatic control (or a related field) and an outstanding research record (or a very good potential to develop an outstanding research career). Candidates from all areas of automatic control are welcome to apply.

Both junior and senior researchers are encouraged to apply. The salary is competitive and varies depending on the curriculum of the candidate (note that research experience is emphasized over teaching experience). The candidate is expected to have light teaching load (one graduate-level class per term), so that he/she can concentrate mostly on research activities. Candidates do not need to be fluent in Spanish (they can teach in English).

CINVESTAV-IPN is the most important public research center in Mexico. The department of Automatic Control offers both MSc and PhD program (CINVESTAV-IPN only offers graduate programs). Both programs are included in the National Graduate Program certification from CONACyT, which means that all our Mexican full-time students receive scholarship from the federal government (no tuition is required for Mexican students). Our department currently has 19 full-time researchers and about 100 graduate students.

Interested candidates must send (via email to: coordinacion@ctrl.cinvestav.mx) the following in a single PDF file:
1) A detailed curriculum vitae that clearly indicates the publications in international journals, and a list of MSc and PhD graduates (if any). The candidate should also include a copy of the three papers that he/she considers as the most representative of his/her research.
2) A research statement that briefly (no more than one page) describes the sort of research that the candidate has done so far and his/her research plan in case of being hired.
3) A teaching statement that briefly (no more than one page) describes the sort of graduate-level courses (in automatic control) that the candidate can teach (and has taught in the past, in case of having teaching experience).
4) The names and contact information (postal address, phone and fax number, and email) of three references.

The deadline of the application is October 1, 2019. For further information, please contact:
Catalina Montelongo, secretaria de la Coordinación Académica
email: coordinacion@ctrl.cinvestav.mx

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

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

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

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

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

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

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

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

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

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

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

The new faculty member should play a leading role in addressing these modelling, estimation and control challenges in general and applying them in plasma control, nuclear fusion (tokamaks), future fuels and thermal systems. The successful candidate should hold a PhD degree in mechanical engineering, electrical engineering, systems and control, (applied) mathematics, computer science or physics. Core disciplines that are envisioned to be needed are:

- Systems and control
- Data-driven modelling (system identification and/or machine learning) and first principles modelling of multi-physics dynamical systems
- Partial differential equations and their control
- Model predictive control (MPC)
- Distributed and decentralized control

and it is expected to have

- Knowledge or strong interest in relevant application domains, for instance, in nuclear fusion, renewable (solar) fuels, etc.

Candidates are expected to be experienced in at least one of the core disciplines mentioned above. She/He should have the ambition to contribute to the creation of a strong, internationally renowned research group, while fostering a collaborative network with other academics working on the topic within the department, the university and industry. Strong ties with DIFFER (Dutch Institute for Fundamental Energy Research) will be established (see https://www.differ.nl).

More information regarding the positions (vacancy number V35.3994) can be found at https://bit.ly/2Li5kfH or contact
- prof. dr. ir. Maurice Heemels (email: m.heemels@tue.nl)
- dr. ir. Tom Oomen (email: t.a.e.oomen@tue.nl)
or through the HR/recruitment department
- Twan Janssen (email: a.p.c.j.janssen@tue.nl)

How to apply:

If you are interested in this position and would like to apply, go to https://bit.ly/2Li5kfH, where you can find further details. You can upload your written application consisting of a letter of motivation, a statement of present and future research plans, a statement of teaching experience and interest, and detailed curriculum vitae including photograph and publications list, through the "apply now" button on the vacancy page. Recommendation letters are highly appreciated.