E-Letter on Systems, Control, & Signal Processing
Issue 380, April 2020

Editor: Ahmad F. Taha
Department of Electrical & Computer Engineering
The University of Texas at San Antonio
1 UTSA Circle, San Antonio, TX 78249
ahmad.taha@utsa.edu
http://engineering.utsa.edu/ataha

Welcome to Issue 380 of the CSS E-letter available here.

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

The next E-Letter will be mailed out at the beginning of May 2020.

Contents

6.19 Faculty: University of Oxford, UK
6.20 Faculty/Research Engineer: Centro de Investigación en Matemáticas, Mexico
6.21 Software Developer: Perceptive Engineering Limited, UK
6.22 Researcher: University of Stuttgart, Germany

1 IEEE CSS Headlines

1.1. President's Message

Contributed by: Anu Annaswamy, aanna@mit.edu

Over the past six weeks, the world has transformed, as we go through a rapidly changing and unsettling time due to the escalation of the COVID-19 disease. We are all adapting to a new mode of living, working, and coming together as a community to respond resiliently and regroup. Our thoughts are with you all! Hope you are staying safe and healthy!

You have probably pulled all-nighters the last couple of days, polishing your CDC papers, uploaded it just a few minutes before midnight your time, breathed a sigh of relief, washed your hands for 20 seconds, and went to bed!

The Control Systems Society is, as you are, planning for the new normal, and innovating wherever we can. The first pertains to our two conferences, CCTA 2020, and CDC 2020. The organizers are preparing for all possible public-health scenarios including the one where the entire conference may be run virtually, with presentations and participation coming from remote locations. Both conference organizers are getting ready for the eventuality that in each parallel session, either all accepted papers will be presented remotely, with the audience engaging in a brief Q&A at the end of each talk with the same teleconference platform, or in a regular conference format with all attending in-person, or anywhere in between. We are planning on innovations in special sessions, public lectures, and social events as well.

Our sister organization, IFAC, has announced a Call for Volunteers to set up an interactive website for COVID-19 related control research efforts, details of which you can find elsewhere in this E-Letter issue (given in the ensuing Section 1.2). At the CSS, we are brainstorming the possibility of joining forces with IFAC, and create a forum on the internet to share thoughts on how we can contribute to a better understanding of the COVID-19 disease and its possible mitigation. Stay tuned!

Anu Annaswamy
President, IEEE CSS

Back to the contents

1.2. Call for Volunteers: COVID-19 IFAC Community Website Project

Contributed by: Frank Allgower allgower@ist.uni-stuttgart.de

A Call for Volunteers for setting up an interactive website for COVID-19 related control research efforts from the International Federation of Automatic Control (IFAC)

With great sadness we are all witnessing the spread of the virus and the associated disease COVID-19. Many people from our systems and control community and their families and friends are seriously affected, up to the worst happening. Without any doubt the current crisis is the worst disaster of worldwide impact that mankind has seen since many decades.

Amidst this tragedy many researchers from different disciplines are focusing their efforts on contributing

to easing the impact of SARS-CoV-2. So are researchers of the field of systems and control from all over the world, and already now papers have been written and made public on individual websites. I am sure many of you are also ready and willing to participate and contribute to using systems and control methods in the context of COVID-19.

In order to provide a hub for information exchange, to share ideas or to find collaboration partners, and to make our community's contributions visible, IFAC is planning to set up an interactive website to support and encourage systems and control research activities around COVID-19. The planned "Corona Control Community Project (C3P) Website" will be hosted by the International Federation of Automatic Control (IFAC) that will cover any cost involved and provide organizational support. Details on how such a website will look like, what kind of information there will be provided, and which features such a website may provide, have not been fixed for the time being.

In "normal times" the approach to setting up an initiative like this would be to install a taskforce that develops suggestions and a technical realization before the outcome would then be discussed and cleared by official IFAC bodies, like the Technical Board or the IFAC Council. Time is, however, of the essence here and such an approach appears too slow. Therefore, we are suggesting a bottom-up community-based project, where the goals, features and the specific implementation are developed and decided upon by those people who are using this web-hub later on. For this we are looking for volunteers with relevant background and expertise who are willing to contribute to setting up such a project.

With this email IFAC would like to encourage systems and control students and researchers at all levels and from all over the world to please volunteer to help in setting up and running such a website. If you are interested, please send an email to

corona-project@ist.uni-stuttgart.de

expressing your willingness to help and briefly indicating the expertise for setting up and running this platform that you could contribute. Please do so immediately because time is of the essence and we want to start the platform at the beginning of April. As initiation step we will bring the volunteers together in a virtual meeting where the next steps will be discussed.

If you are not able to help with the setup, please keep this initiative in mind and check back with the IFAC website at https://www.ifac-control.org to see the result or, even better, to contribute to our Corona Control Community Project Website by providing content and discussion comments on the platform.

Please stay healthy!

Frank Allgöwer
President
International Federation of Automatic Control (IFAC)

Back to the contents

1.3. Follow the CSS Social Media Accounts

Contributed by: Ahmad Taha and Ankush Chakrabarty ahmad.taha@utsa.edu, chakrabarty@merl.com

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

Back to the contents

1.4. CSS Technically Cosponsored Events

Contributed by: Luca Zaccarian, CSS AE Conferences, zaccarian@laas.fr

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

- 24th International Conference on System Theory, Control and Computing (ICSTCC 2020). Sinaia, Romania. October 8-10, 2020. http://ace.ucv.ro/icstcc2020/

- 25th International Conference on Methods and Models in Automation and Robotics (MMAR 2020). Miedzyzdroje, Poland. August 24-27, 2020. http://www.mmar.edu.pl

- 39th Chinese Control Conference (CCC2020). Shenyang, China. July 27-29, 2020.
http://www.ccc2019.cn/en/index.html

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

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

Back to the contents

1.5. 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.

Back to the contents

1.6. IEEE Transactions on Automatic Control

Contributed by: Alessandro Astolfi, ieeetac@imperial.ac.uk

Volume 65 (2020), Issue 3 (March)

Papers:

Technical Notes and Correspondence

- Stability analysis of linear coupled differential-difference systems with general distributed delays Qian Feng, Sing Kiong Nguang, Alexandre Seuret, p. 1356

Back to the contents

1.7. IEEE Control Systems Letters

Contributed by: Francesca Bettini, bettini@dei.unipd.it

IEEE Control Systems Letters
Volume 4 (2020), Issue 2 (April)
http://ieeexplore.ieee.org/xpl/RecentIssue.jsp?punumber=7782633

Papers:

- Adaptive Optimal Decision in Multi-Agent Random Switching Systems, M. Liu, Y. Wan, and F. L. Lewis – p. 265
- Reference Governor for Constrained Control Over Lossy Channels, M. Pezzutto, E. Garone, and L. Schenato – p. 271
- Cooperative Aerial Load Transportation via Sampled Communication, E. Rossi, M. Tognon, R. Carli, L. Schenato, J. Cortés, and A. Franchi – p. 277
- Design of Robust Lyapunov-Based Observers for Nonlinear Systems With Sum-of-Squares Programming, D. Pylorof, E. Bakolas, and K. S. Chan – p. 283
- On the Design of Structured Stabilizers for LTI Systems, F. Ferrante, F. Dabbene, and C. Ravazzi – p. 289
- Learning and Information Manipulation: Repeated Hypergames for Cyber-Physical Security, C. Bakker, A. Bhattacharya, S. Chatterjee, and D. L. Vrabie – p. 295
- Constrained Control of Linear Discrete-Time Systems Under Quartic Performance Criterion, F. Liberati and E. Garone – p. 301
- On the Design of Security-Guaranteeing Dynamic Watermarks, B. Satchidanandan and P. R. Kumar – p. 307
- Sliding Mode Control Techniques and Artificial Potential Field for Dynamic Collision Avoidance in Rendezvous Maneuvers, M. Mancini, N. Bloise, E. Capello, and E. Punta – p. 313
- Observability and Reconstructibility of Probabilistic Boolean Networks, E. Fornasini and M. E. Valcher – p. 319
- Real-Time Identifiability of Power Distribution Network Topologies With Limited Monitoring, G. Cavraro, A. Bernstein, V. Kekatos, and Y. Zhang – p. 325
- Detectability Analysis and Observer Design for Linear Time Varying Systems, M. Tranninger, R. Seeber, S. Zhuk, M. Steinberger, and M. Horn – p. 331
- Flatness and Submersivity of Discrete-Time Dynamical Systems, P. Guillot and G. Millérioux – p. 337
- Realization of r-Robust Formations in the Plane Using Control Barrier Functions, L. Guerrero-Bonilla and V. Kumar – p. 343
- Asymptotic Stability Analysis of Lur'e Systems With Butterfly Hysteresis Nonlinearities, M. A. Vasquez-Beltran, B. Jayawardhana, and R. Peletier – p. 349
- Output Tracking Control Design of Switched Boolean Control Networks, .A. Yerudkar, C. Del Vecchio, and L. Glielmo – p. 355
- Asymptotic Unknown Input Decoupling Observer for Discrete-Time LTI Systems, D. Ichalal and S. Mammar – p. 361

Back to the contents

1.8. IEEE Transactions on Control of Network Systems

Contributed by: Arij Barakat, arij.barakat@kaust.edu.sa

IEEE Transactions on Control of Network Systems
March 2020, Volume 7, Issue 1
http://sites.bu.edu/tcns/march-2020/

Editorial:

- The IEEE Transactions on Control of Network Systems and the Evolution of the Field
Ioannis Ch. Paschalidis
p.2

Papers:

- A Flexible Synthesis Framework of Structured Controllers for Networked Systems
C. A. Rosinger and C. W. Schere
p. 6
- Finite-Time Consensus for Linear Multiagent Systems via Event-Triggered Strategy Without Continuous Communication
C. Du, X. Liu, W. Ren, P. Lu, and H. Liu
p. 19
- A Stability Analysis Framework for Multiantenna Multisensor Cyber-Physical Systems With Rank-Deficient Measurement Matrices
S. Cai and V. K. N. Lau
p. 30
- Distributed Convex Optimization on State-Dependent Undirected Graphs: Homogeneity Technique
H. Hong, X. Yu, W. Yu, D. Zhang, and G. Wen
p. 42
- State Estimation of Multichannel Networked Discrete Event Systems
F. Lin, W. Wang, L. Han, and B. Shen
p. 53
- Convex Relaxations of the Network Flow Problem Under Cycle Constraints
M. Zholbaryssov and A. D. Dominguez-Garcia
p. 64
Distributed Continuous-Time Nonsmooth Convex Optimization With Coupled Inequality Constraints
X. Li, L. Xie, and Y. Hong

The table of contents of this IEEE TCNS issue, with link to IEEE Xplore Digital Library, is available on: http://sites.bu.edu/tcns/march-2020/

Back to the contents

1.9. CSS Award Nominations

Contributed by: Tryphon T. Georgiou, tryphon@uci.edu

The IEEE Control Systems Society (CSS) presents several awards annually for technical achievements in the areas of interest to the society, as well as awards for service. General information and links are provided at http://ieeecss.org/awards/awards-program

Nominations and reference letters are due by May 15 and must be submitted using the CSS Awards Nomination system at css.paperplaza.net.

Back to the contents

1.10. IEEE CSS Outreach Fund

Contributed by: Antonella Ferrara, antonella.ferrara@unipv.it

IEEE Control Systems Society (CSS) Outreach Fund: Spring solicitation

The IEEE Control Systems Society (CSS) Outreach Fund provides grants for projects that will benefit CSS members and the control community in general. Since its inception in 2011, the Fund has funded 78 grants on behalf of a diverse group of CSS member-led activities.

The CSS Outreach Task Force is pleased to announce that the window for proposal submission for its 2020 spring solicitation will be held from **May 1 to 22, 2020**.

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

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

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

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

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

Back to the contents

2 Miscellaneous

2.1. DISC Summer School on Multi-Robot/Agent Systems, The Netherlands

Contributed by: Javier Alonso-Mora and Ming Cao, j.alonsomora@tudelft.nl, m.cao@rug.nl

DISC Summer School 2020
Planning, Learning and Control for Multi-Robot and Multi-Agent Systems
Centerparcs Zandvoort, Zandvoort, The Netherlands
June 30-July 3, 2020

Invitation: Javier Alonso-Mora and Ming Cao have the pleasure to invite you to participate in the DISC Summer School "Planning, Learning and Control for Multi-Robot and Multi-Agent Systems", which will take place from June 30-July 3, 2020, at Centerparcs Zandvoort, Zandvoort, The Netherlands.

The invitation is aimed at PhD and research students, staff members, researchers and engineers engaged in the systems and control area. Distinguished speakers will present a series of tutorial lectures.

- Multi-robot and Multi-agent Systems: In the (near) future fleets of autonomous cars will coordinate to provide on-demand transportation while making our roads safer; mobile robots will coordinate in manufacturing and logistic processes; and teams of aerial robots will provide automated inspection and surveillance. These applications require novel methods and theoretical developments in the systems and control field that account for the interaction and coordination with other agents in complex environments.

In this summer school, we will present recent developments towards the endeavour of pervasive multi-robot and multi-agent systems. The lectures and tutorials will cover the concepts of communication-based coordination (consensus, distributed optimization and formation control), interaction (decision-making in multi-agent systems), motion planning and learning. The lectures contain both recent control theoretical development, as well as, application within the robotics field. Additional, we are hoping that this summer school will serve to partially bridge the gap between controls and AI research for multi-robot and multi-agent systems

Lecturers: The main program will consist of a number of international and national speakers. Keynote lectures will be given by:
· Dimos Dimarogonas, KTH, Sweden
· Jenjen Chung, ETH Zurich, CH
· Dan Halperin, Tel Aviv University, IL
· Lorenzo Sabattini, University of Modena and Reggio Emilia, IT
· Frans Oliehoek, TU Delft, NL

Complemented by talks given by DISC lecturers:
· Javier Alonso-Mora, TU Delft, NL
· Bart Besselink, University of Groningen, NL
· Antonio Franchi, University of Twente, NL
· Sergio Grammatico, TU Delft, NL
· Nathan van de Wouw, TU Eindhoven, NL

Registration: The registration fee, which includes full board and lodging, is
· 825,- Euro for DISC students/members (until May 10, 2020-early bird) and 975,- Euro (after May 10, 2020)
· 1025,- Euro for non-DISC members (until May 10, 2020-early bird) and 1200,- Euro (after May 10, 2020)

For more information about the accommodation arrangements please refer to the website: http://disc.tudelft.nl/education/summer-school/disc-summer-school-2020/. The school is limited to 50 participants based on a first-come first-serve policy. The registration deadline is June 9, 2020 (Early bird deadline May 10, 2020).

You can register at the following website: http://disc-courseplatform.nl. Non DISC members can also send an email to: secr@disc.tudelft.nl (Please mention your full name and university affiliation including address). For further information, contact the DISC administrative office: Martha Otte (m.w.otte@tudelft.nl) or the organizers: Javier Alonso-Mora (j.alonsomora@tudelft.nl) and Ming Cao (m.cao@rug.nl).

Back to the contents

2.2. IFAC TC Award on System Identification

Contributed by: Chiuso Alessandro, chiuso@dei.unipd.it

Call for Nominations - IFAC TC1.1. Award on System Identification 2021
IFAC TC 1.1: Modeling, Identification and Signal Processing
Nominations are sought for the IFAC TC Award on System Identification 2021.

Objective: The IFAC TC Award on System Identification is bestowed every three years to recognize the outstanding contribution of a publication (journal paper or book chapter or scientific monograph) in the area of system identification that has appeared in the six calendar years prior to the award year. The main goal of the prize is to recognize and promote high quality research. The extended period of six years reflects the fact that the value of fundamental work cannot always be immediately assessed. The winner may be invited to deliver a plenary presentation at the 2021 IFAC Symposium on System Identification.

Nomination procedure: Any individual can serve as a nominator, with the exception of members of the award committee. Self-nominations are not allowed.

Nominations should:
- be sent via email to both the TC chair (Prof. Alessandro Chiuso, chiuso@dei.unipd.it) and the TC co-chair (Prof. Marco Campi, campi@unibs.it).
- the subject of the message should report the sentence:: IFAC TC1.1 Award 2021 nomination

The nomination package should consist of:
- A nomination letter, which describes the strength of the contribution and its impact in the field of System Identification.
- The names of 3 potential referees (it is expected that the 3 referees are aware that their name has been indicated and are willing to provide a reference letter within one month if so requested).
- Proposed citation of at most 30 words.

Eligibility: Eligible contributions must have been published (also on-line) after August 31st, 2014. Contri-

butions co-authored by the current TC Chair and Vice Chairs are not eligible.

Closing date: nominations are due on August 31st, 2020.

Back to the contents

3 Books

3.1. Practical Control of Electric Machines

Contributed by: Laura Burgess, laura.burgess@springer.com

Practical Control of Electric Machines by Rubén Molina Llorente
ISBN: 978-3-030-34757-4
March 2020, Springer
Hardcover, 622 pages, $179.00/€109,99
https://www.springer.com/gb/book/9783030347574

This book presents deep analysis of machine control for different applications, focusing on its implementation in embedded systems. Necessary peripherals for various microcontroller families are analysed for machine control and software architecture patterns for high-quality software development processes in motor control units are described. Abundant figures help the reader to understand the theoretical, simulation and practical implementation stages of machine control. Model-based design, used as a mathematical and visual approach to construction of complex control algorithms, code generation that eliminates hand-coding errors, and co-simulation tools such as Simulink, PSIM and finite element analysis are discussed. The simulation and verification tools refine, and retest the models without having to resort to prototype construction. The book shows how a voltage source inverter can be designed with tricks, protection elements, and space vector modulation.

Practical Control of Electric Machines: Model-Based Design and Simulation is based on the author's experience of a wide variety of systems in domestic, automotive and industrial environments, and most examples have implemented and verified controls. The text is ideal for readers looking for an insight into how electric machines play an important role in most real-life applications of control. Practitioners and students preparing for a career in control design applied in electric machines will benefit from the book's easily understood theoretical approach to complex machine control. The book contains mathematics appropriate to various levels of experience, from the student to the academic and the experienced professional.

Contents:

Back to the contents

4 Journals

4.1. IEEE/CAA Journal of Automatica Sinica

Contributed by: Yan Ou, yan.ou@ia.ac.cn

IEEE/CAA Journal of Automatica Sinica
Volume 7 (2020), Issue 1 (January)
http://ieeexplore.ieee.org/xpl/RecentIssue.jsp?punumber=6570654

Reviews:

Papers:

Back to the contents

4.2. IMA Journal of Mathematical Control and Information

Contributed by: Hannah Cherry, hannah.cherry@oup.com

IMA Journal of Mathematical Control and Information
Volume 37, Number 1
https://academic.oup.com/imamci/issue/37/1

Papers:

- Stability of linear equations with differentiable operators in a hilbert space
Michael Gil' https://academic.oup.com/imamci/article/37/1/19/5097007
- Existence, stability and controllability results of a Volterra integro-dynamic system with non-instantaneous impulses on time scales
Muslim Malik, Vipin Kumar
https://academic.oup.com/imamci/article/37/1/276/5298253
- Well-posedness and stability results for laminated Timoshenko beams with interfacial slip and infinite memory
Aissa Guesmia
https://academic.oup.com/imamci/article/37/1/300/5303447

- Optimal scheduling of discrete-time switched linear systems
Wei Xu, Zhi Guo Feng, Gui-Hua Lin, Liying Yu
https://academic.oup.com/imamci/article/37/1/1/5092032
- State convergence of a class of time-varying differential equations
M F M Naser
https://academic.oup.com/imamci/article/37/1/27/5100817
- Mild solution and controllability of second-order non-local retarded semilinear systems
Suman Kumar, Nutan Kumar Tomar
https://academic.oup.com/imamci/article/37/1/39/5104493
- Strong and weak stabilization of semi-linear parabolic systems
Rabie Zine, Abdessamad El Alami
https://academic.oup.com/imamci/article/37/1/50/5104494
- Time/frequency-limited positive-real truncated balanced realizations
Umair Zulfiqar, Muhammad Imran, Abdul Ghafoor, Muwahida Liaqat
https://academic.oup.com/imamci/article/37/1/64/5104495
- Event-based impulsive control for nonlinear systems and its application to synchronization of Chua's circuit
Xuegang Tan, Jinde Cao, Xiaodi Li
https://academic.oup.com/imamci/article/37/1/82/5123753
- On event-triggered tracking for non-linear SISO systems via sliding mode control
Farzad Zarei, Mohammad Hossein Shafiei
https://academic.oup.com/imamci/article/37/1/105/5132772
- Stabilization of an Orr–Sommerfeld equation cascaded by both the Squire equation and ODE subject to boundary control matched disturbance via active disturbance rejection control
Xi Xu, Chun-Hai Kou
https://academic.oup.com/imamci/article/37/1/120/5136500
- A dissipative approach to the stability of multi-order fractional systems
Javier A Gallegos, Manuel A Duarte-Mermoud
https://academic.oup.com/imamci/article/37/1/143/5148144
- Optimal control of linear PDEs using occupation measures and SDP relaxations
Victor Magron, Christophe Prieur
https://academic.oup.com/imamci/article/37/1/159/5162989
- On the explicit feedback stabilization of one-dimensional linear nonautonomous parabolic equations via oblique projections
Sérgio S Rodrigues, Kevin Sturm
https://academic.oup.com/imamci/article/37/1/175/5204139
- A novel model predictive control strategy for constrained and unconstrained systems in presence of disturbance
Mohammad Reza Zamani, Zahra Rahmani, Behrooz Rezaie
https://academic.oup.com/imamci/article/37/1/208/5270745
- On the boundary controllability of the Korteweg–de Vries equation on a star-shaped network
Eduardo Cerpa, Emmanuelle Crépeau, Claudia Moreno
https://academic.oup.com/imamci/article/37/1/226/5270746
- Stabilization of a Timoshenko beam system with a tip mass under unknown non-uniformly bounded disturbances

Liping Zhang, Dongyi Liu, Genqi Xu
https://academic.oup.com/imamci/article/37/1/241/5289478
- On the practical separation principle of time-varying perturbed systems
Ines Ellouze
https://academic.oup.com/imamci/article/37/1/260/5289824

Back to the contents

4.3. Systems & Control Letters

Contributed by: Lusia Veksler, lveksler@ucsd.edu

Systems & Control Letters
Volume 137, March 2020

Papers:

- Distributed leader following of an active leader for linear heterogeneous multi-agent systems, Yi-Fan Chung, Solmaz S. Kia, Article 104621
- On the benefits of saturating information in consensus networks with noise, Mingming Shi, Claudio De Persis, Pietro Tesi, Article 104623
- The novel sufficient conditions of almost sure exponential stability for semi-Markov jump linear systems, Bao Wang, Quanxin Zhu, Article 104622
- Intermittent stochastic stabilization based on discrete-time observation with time delay, Lei Liu, Zhaojing Wu, Article 104626
- Probabilistic error analysis for some approximation schemes to optimal control problems, Athena Picarelli, Christoph Reisinger, Article 104619
- Anti-windup for model-reference adaptive control schemes with rate-limits, Matthew C. Turner, Jorge Sofrony, Emmanuel Prempain, Article 104630
- Prescribed-time decentralized regulation of uncertain nonlinear multi-agent systems via output feedback,Xiandong Chen, Xianfu Zhang, Qingrong Liu, Article 104640
- Repetitive process based stochastic iterative learning control design for linear dynamics, Pavel Pakshin, Julia Emelianova, Eric Rogers, Krzysztof Gałkowski, Article 104625
- One-shot design of performance scaling matrices and observer-based gain-scheduled controllers depending on inexact scheduling parameters, Masayuki Sato, Article 104632
- Control law in analytic expression of a system coupled by reaction–diffusion equation, Xinglan Liu, Chengkang Xie, Article 104643
- Minimum time and minimum energy for linear control systems, Ovidiu Cârjă, Alina I. Lazu, Article 104629
- Stabilisation by delay feedback control for highly nonlinear neutral stochastic differential equations, Mingxuan Shen, Chen Fei, Weiyin Fei, Xuerong Mao, Article 104645
- Scalar criteria for exponential stability of functional differential equations, P.H.A. Ngoc, T.B. Tran, C.T. Tinh, N.D. Huy, Article 104642
- Decay of singular values for infinite-dimensional systems with Gevrey regularity, Mark R. Opmeer, Article 104644

Back to the contents

4.4. Control Theory and Technology

Contributed by: Zou Tiefeng, tfzou@scut.edu.cn

Control Theory and Technology (formerly entitled Journal of Control Theory and Applications)
Vol. 18, No. 1, February 2020
ISSN: 2095-6983 CODEN: CTTOAM
https://www.springer.com/journal/11768

Papers:

- Mathematical model derivation of an unmanned circulation control aerial vehicle UC2AV M. Agha, K. Kanistras, M. J. Rutherford, K. P. Valavanis P.1
- Backstepping approach for design of PID controller with guaranteed performance for micro-air UAV Y. Kartal, P. Kolaric, V. Lopez, A. Dogan, F. Lewis P.19
- Mutual information of cylinder pressure and combustion phase estimation in spark ignition engines H. Di, T. Shen P.34
- A novel control solution for improved trajectory tracking and LVRT performance in DFIG-based wind turbines A. Hashemi, C. Conficoni, A. Tilli P.43
- Stability and weighted sensitivity analysis of robust controller for heat exchanger S. Gupta, R. Gupta, S. Padhee P.56
- Class conditional distribution alignment for domain adaptation K. Cao, Z. Tu, Y. Ming P.72
- Adaptive nonsingular fast terminal sliding mode control for underwater manipulator robotics with asymmetric saturation actuators Z. Zhou, G. Tang, H. Huang, L. Han, R. Xu P.81
- Stability analysis for time delay control of nonlinear systems in discrete-time domain with a standard discretisation method J. Lee, G. A. Medrano-Cerda, J. H. Jung P.92
- Recent advances on dynamic learning from adaptive NN control M. Wang, C. Wang P.107
- Erratum to: Distributed active fault tolerant control design against actuator faults for multiple mobile robots P.110

Back to the contents

4.5. International Journal of Applied Mathematics and Computer Science

Contributed by: Józef Korbicz, amcs@uz.zgora.pl

International Journal of Applied Mathematics and Computer Science (AMCS)
2020, Volume 30, Number 1 (March)
Regular issue
www.amcs.uz.zgora.pl

Papers:

- Maksimov V. and Tröltzsch F. Input reconstruction by feedback control for the Schlögl and FitzHugh–Nagumo equations 5
- Bania P. An information based approach to stochastic control problems 23
- Ławryńczuk M. Nonlinear model predictive control for processes with complex dynamics: A parameterisation approach using Laguerre functions 35

Publisher: University of Zielona Góra, Poland
ISSN: 1641-876X (print), 2083-8492 (online)
Frequency: Quarterly
Editor-in-Chief: Józef Korbicz
Website: www.amcs.uz.zgora.pl
E-mail: amcs@uz.zgora.pl
Scope: modern control theory and practice; artificial intelligence methods and their applications; applied mathematics and mathematical optimisation techniques; mathematical methods in engineering, computer science, and biology Indexation: ACM Digital Library, Applied Mechanics Reviews, Current Mathematical Publications (AMS), DBLP Computer Science Bibliography, EBSCO, Elsevier, Google Scholar, Inspec, Mathematical Reviews (MathSciNet), ProQuest, Clarivate Analytics (formerly Thomson Reuters), Zentralblatt Math, and others.

Impact Factor: 1.504 (2018) / 5-Year IF: 1.553 (2018)

Back to the contents

4.6. IET Control Theory & Applications

Contributed by: Faraz Alam, farazalam@theiet.org

IET Control Theory & Applications
Volume 14, March 2020, Issues 4 and 5
https://digital-library.theiet.org/content/journals/iet-cta/14/4
https://digital-library.theiet.org/content/journals/iet-cta/14/5

Papers:

- Zhijian Hu, Shichao Liu, Liu Yang and Ligang Wu , Distributed fuzzy filtering for load frequency control of non-linear interconnected power systems under cyber-physical attacks, p. 527 –538
- Kheira Kahili , Omar Bouhali , Nassim Rizoug and Fouad Khenfri , Hybrid FS–WNN approximator in indirect adaptive control of uncertain non-linear MIMO systems, p. 539 –548
- Kaixuan Li , Qingshan Liu and Zhigang Zeng , Distributed optimisation based on multi-agent system for resource allocation with communication time-delay, p. 549 –557
- Quanwei Qiu , Fuwen Yang , Yong Zhu and Eman Mousavinejad , Output feedback model predictive control based on set-membership state estimation, p. 558 –567
- Yousef Alipouri and Biao Huang , Distributed control performance assessment and corresponding optimal controller design considering communication delays, p. 568 –576
- Changchun Hua , Zhijie Li , Kuo Li and Xinping Guan , Event-based leader-following consensus for uncertain non-linear multiagent systems, p. 577 –583
- Kairong Duan , Simon Fong and C. L. Philip Chen , Fuzzy observer-based tracking control of an underactuated underwater vehicle with linear velocity estimation, p. 584 –593
- Yihao Xu , Yanqian Wang , Guangming Zhuang and Junwei Lu , Reliable mixed H-Infinity/passive control for T–S fuzzy semi-Markovian jump systems under different event-triggered schemes, p. 594 –604
- Hao Sun , Chen Dai and Shihua Li , Composite control of fuel quantity actuator system for diesel engines via backstepping control technique and generalised proportional integral observer, p. 605 –613
- Xiaohong Nian , Xinran Fu , Xiaoyan Chu , Hongyun Xiong and Haibo Wang , Disturbance observer-based distributed sliding mode control of multimotor web-winding systems, p. 614 –625
- Gaetano Tartaglione , Marco Ariola and Francesco Amato , Conditions for annular finite-time stability of Ito stochastic linear time-varying systems with Markov switching, p. 626 –633
- Dongdong Zhao , Krzysztof Galkowski , Bartlomiej Sulikowski and Li Xu , Derivation and reduction of the singular Fornasini–Marchesini state-space model for a class of multidimensional systems, p. 634 –645
- Jintao Chen , Zongying Shi and Yisheng Zhong ,Robust formation tracking for uncertain multi-agent systems with unknown leader input, p. 646 –653
- Ye Ren and Zhongsheng Hou , Robust model-free adaptive iterative learning formation for unknown heterogeneous non-linear multi-agent systems, p. 654 –663
- Liang Zhang , Zexu Zhang , Nicholas Lawrance , Juan Nieto and Roland Siegwart , Decentralised finite-time consensus for second-order multi-agent system under event-triggered strategy, p. 664 –673
- Xiao Zhang and Feng Ding, Recursive parameter estimation and its convergence for bilinear systems, p. 677 –688
- Jingjing Li and Shaosheng Zhou , Stability analysis and stabilisation of delayed IT2 fuzzy systems based on the Bessel–Legendre inequality, p. 689 –699
- Maryam Bagherzadeh and Walter Lucia , A set-theoretic model predictive control approach for transient stability in smart grid, p. 700 –707
- Hamid Kalantari , Mohsen Mojiri , Stevan Dubljevic and Najmeh Zamani , Fast l1 model predictive control based on sensitivity analysis strategy, p. 708 –716
- Bruno Sereni , Edvaldo Assunção and Marcelo Carvalho Minhoto Teixeira , New gain-scheduled static output feedback controller design strategy for stability and transient performance of LPV systems, p. 717 –725
- Yueqiao Han , Chun-Yi Su , Yonggui Kao and Cunchen Gao , Non-fragile sliding mode control of discrete switched singular systems with time-varying delays, p. 726 –737

- Wen-Bo Xie , Zhao-Kun Han , Fen Wu and Song Zhu ,H-Infinity observer–controller synthesis approach in low frequency for T–S fuzzy systems, p. 738 –749
- Seyyed Ali Emami and Afshin Banazadeh , Fault-tolerant predictive trajectory tracking of an air vehicle based on acceleration control, p. 750 –762
- Xuewei Wu , Congqing Wang and Shaoyang Hua , Predictor-based adaptive feedback control for a class of systems with time delay and its application to an aircraft skin inspection robot, p. 763 –773

Brief papers:

- Le Van Hien and Nguyen Thi Lan-Huong , Observer-based L2/L-Infinity control of 2D Roesser systems with random packet dropout, p. 774 –780
- Márcio Júnior Lacerda and Thales da Silveira Gomide , Stability and stabilisability of switched discrete-time systems based on structured Lyapunov functions, p. 781 –789
- Zeng Wang , Yuxin Su and Liyin Zhang, Fixed-time attitude tracking control for rigid spacecraft, p. 790 –799

Back to the contents

4.7. International Journal of Control, Automation, and Systems

Contributed by: Keum-Shik Hong, journal@ijcas.com

International Journal of Control, Automation, and Systems (IJCAS)
ISSN: 1598-6446
http://www.springer.com/engineering/robotics/journal/12555
Indexed in: Science Citation Index Expanded (SciSearch), Journal Citation Reports/Science Edition, SCOPUS, INSPEC, Google Scholar, ProQuest, Academic OneFile, Current Contents/Engineering, Computing and Technology, EI-Compendex, OCLC, SCImago, Summon by Serial Solutions

Table of contents
Vol. 18, No. 4, April 2020

Papers:

- A Survey of Controller Designs for New Generation UAVs: The Challenge of Uncertain Aerodynamic Parameters Michail G. Michailidis*, Matthew J. Rutherford, and Kimon P. Valavanis, pp.801-816
- Stability of Switched Positive Linear Systems with Actuator Saturation under Mode-dependent Average Dwell Time Lijie You, Jianyin Fang, and Xiaowu Mu*, pp.817-823
- Practical Approach for Controlling Optical Image Stabilization System Woo-Yong Kim, Hyung-Tae Seo, Soohyun Kim, and Kyung-Soo Kim*, pp.824-833
- PD+SMC Quadrotor Control for Altitude and Crack Recognition using Deep Learning J. M. Vazquez-Nicolas*, Erik Zamora, Iván González-Hernández, Rogelio Lozano, and Humberto Sossa, pp.834-844
- Standoff Tracking of a Moving Target for Quadrotor Using Lyapunov Potential Function Hui Ye, Xiaofei Yang*, Hao Shen, and Rong Li, pp.845-855
- Online Delay Estimation and Adaptive Compensation in Wireless Networked System: An Embedded Control Design Santosh Mohan Rajkumar, Sayan Chakraborty, Rajeeb Dey*, and Dipankar Deb, pp.856-866

- Output Regulation for a Class of Uncertain Nonlinear Time-delay Systems by Output Feedback Control Gui-Zhi Meng* and Ke-Mao Ma, pp.867-876
- Stability Criteria for Systems with Multiple Probabilistic Intervals Time-varying Delay Zongming Yin, Xiefu Jiang*, Fang Wang, pp.877-885
- Two-stage Gradient-based Iterative Estimation Methods for Controlled Autoregressive Systems Using the Measurement Data Feng Ding*, Lei Lv, Jian Pan, Xiangkui Wan, and Xue-Bo Jin, pp.886-896
- Operating Range Scheduled Robust Dahlin Algorithm to Typical Industrial Process with Input Constraint Xiaoying Tian, Hui Peng*, Xuguang Luo, Shiyuan Nie, Feng Zhou, and Xiaoyan Peng, pp.897-910
- Passive Fuzzy Control Design for a Class of Nonlinear Distributed Parameter Systems with Time-varying Delay Xunwu Yin, Xiaona Song*, and Mi Wang, pp.911-921
- H-Infinity Containment Control of Multi-agent Systems with Random Communication Time-varying Delay Minhong He and Xiaowu Mu*, pp.922-929
- Fast finite-time H-Infinity control for a class of p-normal form nonlinear systems with output constraint and its application Liyao Hu and Xiaohua Li*, pp.930-943
- Leader-following Exponential Consensus of Discrete-time Multi-agent Systems with Time-varying Delay and Intermittent Communication Shuang Liang, Zhongxin Liu*, and Zengqiang Chen, pp.944-954
- Online Ensemble Topology Selection in Expensive Optimization Problems Yoel Tenne, pp.955-965
- Event-triggered Coordination Control for Multi-agent Systems with Connectivity Preservation Yuan Fan*, Jun Chen, Cheng Song, and Yong Wang, pp.966-979
- Decentralized Adaptive Event-triggered Control for Nonlinear Interconnected Systems in Strict-feedback Form Yuehui Ji*, Hailiang Zhou, and Qun Zong, pp.980-990
- Time-varying Formation Tracking for Second-order Multi-agent Systems Subjected to Switching Topology and Input Saturation Jing Liu, Jian-an Fang*, Zhen Li, and Guang He, pp.991-1001
- Study on Asymptotic Stability of Fractional Singular Systems with Time Delay Dazi Li*, Liming Wei, Tianheng Song, and Qibing Jin, pp.1002-1011
- Optimal Tracking Performance of NCSs with Time-delay and Encoding-decoding Constraints Jun-Wei Hu, Xi-Sheng Zhan*, Jie Wu, and Huai-Cheng Yan, pp.1012-1022
- Generalized Optimal and Explicit PI/PID Tuning Formulas for Underdamped Second-order Systems Saher Albatran*, Issam A. Smadi, and Hussein A. Bataineh, pp.1023-1032
- A Relaxed Observer-based Control for LPV Stochastic Systems Subject to H-Infinity Performance Cheung-Chieh Ku* and Guan-Wei Chen, pp.1033-1044
- A PD-type Iterative Learning Control Algorithm for One-dimension Linear Wave Equation Meryem Hamidaoui, Cheng Shao*, and Samia Haouassi, pp.1045-1052
- Rebalancing Method for a Front-loading Washing Machine Using a Robot Balancer System Min Gyu Jo, Jae Hyun Kim, and Jae Weon Choi*, pp.1053-1060
- Study on the Handling Qualities Enhancement of Fixed-wing Aircraft Using Adaptive Neural Network Do Hyeon Lee, Chang-Joo Kim*, Sung Wook Hur, and Seong Han Lee, pp.1061-1074

Back to the contents

4.8. Automatica

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

Automatica
Volumes 114, 115,

April and May 2020

Papers:

Lavaei A., Soudjani S., Zamani M., Compositional abstraction-based synthesis for networks of stochastic switched systems
Yang R., Zheng W.X., Yu Y., Event-triggered sliding mode control of discrete-time two-dimensional systems in Roesser model
Ju Y., Sun Y., Stabilization of discrete-time switched positive linear systems via weak switched linear copositive Lyapunov function
Klickstein I., Sorrentino F., The controllability Gramian of lattice graphs
Liu C., Li H., Shi Y., A unitary distributed subgradient method for multi-agent optimization with different coupling sources
Liu X., Xie C., Boundary control of reaction–diffusion equations on higher-dimensional symmetric domains
Mu B., Qi H., Petersen I.R., Shi G., Quantum tomography by regularized linear regressions
Himmel A., Sager S., Sundmacher K., Time-minimal set point transition for nonlinear SISO systems under different constraints
Rajamani R., Jeon W., Movahedi H., Zemouche A., On the need for switched-gain observers for non-monotonic nonlinear systems
Matveev A.S., Magerkin V.V., Savkin A.V., A method of reactive control for 3D navigation of a nonholonomic robot in tunnel-like environments
He X., Xue W., Zhang X., Fang H., Distributed filtering for uncertain systems under switching sensor networks and quantized communications
Chen C.-C., Sun Z.-Y., Output feedback finite-time stabilization for high-order planar systems with an output constraint
Xu R., Zhang F., ϵ-Nash mean-field games for general linear-quadratic systems with applications
P.K. M.A., Chatterjee D., Banavar R., A simple proof of the discrete time geometric Pontryagin maximum principle on smooth manifolds
Berberich J., Köhler J., Allgöwer F., Müller M.A., Dissipativity properties in constrained optimal control: A computational approach
Kolathaya S., Local stability of PD controlled bipedal walking robots
Guo B.-Z., Meng T., Robust error based non-collocated output tracking control for a heat equation
Ye M., Hu G., Xu S., An extremum seeking-based approach for Nash equilibrium seeking in N-cluster noncooperative games
Ren W., Dimarogonas D.V., Symbolic abstractions for nonlinear control systems via feedback refinement relation
Phogat K.S., Chang D.E., Invariant extended Kalman filter on matrix Lie groups
Chen L., Edwards C., Alwi H., Sato M., Flight evaluation of a sliding mode online control allocation scheme for fault tolerant control
Qi H., Mu B., Petersen I.R., Shi G., Measurement-induced Boolean dynamics and controllability for closed quantum networks
Al-Matouq A., Vincent T., A convex optimization framework for the identification of homogeneous reaction systems
Lu L., Maciejowski J.M., Self-triggered MPC with performance guarantee using relaxed dynamic programming

Ghousein M., Witrant E., Bhanot V., Petagna P., Adaptive boundary observer design for linear hyperbolic systems; Application to estimation in heat exchangers
Nakakuki T., Imura J.-I., Finite-time regulation property of DNA feedback regulator
Blanken L., Oomen T., Kernel-based identification of non-causal systems with application to inverse model control
Wu W., Gao J., Lu J.-G., Li X., On continuous-time constrained stochastic linear–quadratic control
Chen G., Su W., Mei W., Bullo F., Convergence properties of the heterogeneous Deffuant–Weisbuch model
Yang Y., Moran B., Wang X., Brown T.C., Williams S., Pan Q., Experimental analysis of a game-theoretic formulation of target tracking
Lv S., Two-player zero-sum stochastic differential games with regime switching
Hu J., Wang Z., Liu G.-P., Jia C., Williams J., Event-triggered recursive state estimation for dynamical networks under randomly switching topologies and multiple missing measurements
Hao X., Liang Y., Xu L., Wang X., Mode separability-based state estimation for uncertain constrained dynamic systems
Laurain V., Tóth R., Piga D., Darwish M.A.H., Sparse RKHS estimation via globally convex optimization and its application in LPV-IO identification
Zhang Y., Liu C., Mu X., Zhan M., Comment on "Delay-dependent robust H-Infinity filtering for uncertain discrete-time singular systems with interval time-varying delay"
Moravej Khorasani M., Weyer E., Non-asymptotic confidence regions for the parameters of EIV systems
Kundu A., Chatterjee D., Robust matrix commutator conditions for stability of switched linear systems under restricted switching
Berger T., Tracking with prescribed performance for linear non-minimum phase systems
Isaza-Hurtado J.A., Botero-Castro H.A., Alvarez H., Robust estimation for LPV systems in the presence of non-uniform measurements
Oh K.-H., Fidan B., Ahn H.-S., Distributed bearing vector estimation in multi-agent networks
Cheng X., Scherpen J.M.A., Novel Gramians for linear semistable systems
She B., Kan Z., Characterizing controllable subspace and herdability of signed weighted networks via graph partition
Freudenthaler G., Meurer T., PDE-based multi-agent formation control using flatness and backstepping: Analysis, design and robot experiments
Liu R., Wu Z., Zhang Q., Pairs-trading under geometric Brownian motions: An optimal strategy with cutting losses
Auriol J., Di Meglio F., Robust output feedback stabilization for two heterodirectional linear coupled hyperbolic PDEs
Cruz-Ancona C.D., Martínez-Guerra R., Pérez-Pinacho C.A., A leader-following consensus problem of multi-agent systems in heterogeneous networks
Li W., Wang Z., Yuan Y., Guo L., Two-stage particle filtering for non-Gaussian state estimation with fading measurements
Sarıtaş S., Yüksel S., Gezici S., Dynamic signaling games with quadratic criteria under Nash and Stackelberg equilibria
Zhang J., Pace A.M., Burden S.A., Aravkin A., Offline state estimation for hybrid systems via nonsmooth variable projection
Sun H., Li J., Analysis on reachable set for spacecraft relative motion under low-thrust
Ye M., Trinh M.H., Lim Y.-H., Anderson B.D.O., Ahn H.-S., Continuous-time opinion dynamics on multiple interdependent topics

Stefanovski J., Juricic D., FTC in presence of disturbances and un-estimable faults
Braverman E., Diblík J., Rodkina A., Šmarda Z., Stabilization of cycles for difference equations with a noisy PF control
Krishnamurthy P., Khorrami F., Krstic M., A dynamic high-gain design for prescribed-time regulation of nonlinear systems
Hua M.-D., Trumpf J., Hamel T., Mahony R., Morin P., Nonlinear observer design on SL(3) for homography estimation by exploiting point and line correspondences with application to image stabilization
Alessandretti A., Pequito S., Pappas G.J., Aguiar A.P., Finite-dimensional control of linear discrete-time fractional-order systems
Berret B., Jean F., Efficient computation of optimal open-loop controls for stochastic systems
Mustafa A., Modares H., Moghadam R., Resilient synchronization of distributed multi-agent systems under attacks
Shen C., Shi Y., Distributed implementation of nonlinear model predictive control for AUV trajectory tracking
Wang F., Wang Z., Liang J., Liu X., Recursive distributed filtering for two-dimensional shift-varying systems over sensor networks under stochastic communication protocols
Zhang K., Liu Y., Liu J., Liu M., Başar T., Distributed learning of average belief over networks using sequential observations
Demetriou M.A., Bakolas E., Navigating over 3D environments while minimizing cumulative exposure to hazardous fields
Soverini U., Söderström T., Frequency domain identification of FIR models in the presence of additive input–output noise
Zhao D., Li Y., Ahn C.K., Ding S.X., Optimal state and fault estimation for two-dimensional discrete systems
Wang Y., Lin W., Semiglobal asymptotic stabilization of nonlinear systems with triangular zero dynamics by linear feedback
Li Z., You K., Song S., Cooperative source seeking via networked multi-vehicle systems
Ryalat M., Laila D.S., ElMoaqet H., Almtireen N., Dynamic IDA-PBC control for weakly-coupled electromechanical systems
Li M., Shi Y., Ye H., Saturated stabilization for an uncertain cascaded system subject to an oscillator
Deori L., Garatti S., Prandini M., A randomized relaxation method to ensure feasibility in stochastic control of linear systems subject to state and input constraints
Boskos D., Dimarogonas D.V., Finite horizon discrete models for multi-agent control systems with coupled dynamics
Niu B., Zhao P., Liu J.-D., Ma H.-J., Liu Y.-J., Global adaptive control of switched uncertain nonlinear systems: An improved MDADT method
Yang H., Zhang C., An Z., Jiang B., Exponential small-gain theorem and fault tolerant safe control of interconnected nonlinear systems
Murguia C., Shames I., Ruths J., Nešić D., Security metrics and synthesis of secure control systems
Lu Y., Zhu M., On privacy preserving data release of linear dynamic networks
Duenas V.H., Cousin C.A., Ghanbari V., Fox E.J., Dixon W.E., Torque and cadence tracking in functional electrical stimulation induced cycling using passivity-based spatial repetitive learning control
Meng M., Li X., Xiao G., Synchronization of networks over finite fields
Cavallo A., Costanzo M., De Maria G., Natale C., Modeling and slipping control of a planar slider
Tang W., Wang Z., Zhang Q., Shen Y., Set-membership estimation for linear time-varying descriptor systems
Zhang Y., Li S., Xu B., Yang Y., Analysis and design of a distributed k-winners-take-all model

Back to the contents

4.9. Control Engineering Practice

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

Control Engineering Practice
Volumes 96 and 97
March and April 2020

Papers:

Prášek J., Trnka P., Havlena V., McGahan P., Range control MPC with application to Vapor Compression Cycles
van Dooren S., Balerna C., Salazar M., Amstutz A., Onder C.H., Optimal Diesel engine calibration using convex modelling of Pareto frontiers
Han H.-G., Zhang H.-J., Liu Z., Qiao J.-F., Data-driven decision-making for wastewater treatment process
Joa E., Cha H., Hyun Y., Koh Y., Yi K., Park J., A new control approach for automated drifting in consideration of the driving characteristics of an expert human driver
Pei X., Pan H., Chen Z., Guo X., Yang B., Coordinated control strategy of electro-hydraulic braking for energy regeneration
Fallah M., Kojabadi H.M., Blaabjerg F., New control method for VSC-MTDC stations in the abnormal conditions of power system
Xiong W., Wang J., A semi-physical static model for optimizing power consumption of HVAC systems
Bascetta L., Baur M., Ferretti G., A simple and reliable technique to design kinematic-based sideslip estimators
Sa-e S., Freeman C.T., Yang K., Iterative learning control of functional electrical stimulation in the presence of voluntary user effort
Tena D., Peñarrocha-Alós I., A simple procedure for fault detectors design in SISO systems
Bracco G., Canale M., Cerone V., Optimizing energy production of an Inertial Sea Wave Energy Converter via Model Predictive Control
Eldigair Y., Garelli F., Kunusch C., Ocampo-Martinez C., Adaptive PI control with robust variable structure anti-windup strategy for systems with rate-limited actuators: Application to compression systems
Du S., Wu M., Chen L., Cao W., Pedrycz W., Operating mode recognition of iron ore sintering process based on the clustering of time series data
Ying A., Zeng J., Kruger U., Luo S., Xie L., Hierarchical density decompositions for abnormal event diagnosis in serially correlated non-Gaussian systems
Page A.P., Freeman C.T., Point-to-point repetitive control of functional electrical stimulation for drop-foot
Peixoto A.J., Oliveira T.R., Pereira-Dias D., Monteiro J.C., Multivariable extremum-seeking by periodic switching functions with application to Raman optical amplifiers
Wu X., Chen J., Xie L., Chan L.L.T., Chen C.-I., Development of convolutional neural network based Gaussian process regression to construct a novel probabilistic virtual metrology in multi-stage semiconductor processes
Marchesoni M., Passalacqua M., Vaccaro L., Calvini M., Venturini M., Performance improvement in a sensorless surface-mounted PMSM drive based on rotor flux observer

Schörghuber C., Gölles M., Reichhartinger M., Horn M., Control of biomass grate boilers using internal model control
Loy-Benitez J., Heo S., Yoo C., Soft sensor validation for monitoring and resilient control of sequential subway indoor air quality through memory-gated recurrent neural networks-based autoencoders
Tran J., Farokhi F., Cantoni M., Shames I., Implementing homomorphic encryption based secure feedback control
Zhou P., Zhang R., Liang M., Fu J., Wang H., Chai T., Fault identification for quality monitoring of molten iron in blast furnace ironmaking based on KPLS with improved contribution rate
Maitland A., McPhee J., Quasi-translations for fast hybrid nonlinear model predictive control
Nguyen K.T., Hoang M.C., Go G., Kang B., Choi E., Park J.-O., Kim C.-S., Regularization-based independent control of an external electromagnetic actuator to avoid singularity in the spatial manipulation of a microrobot
Terzi E., Bonetti T., Saccani D., Farina M., Fagiano L., Scattolini R., Learning-based predictive control of the cooling system of a large business centre
Chen G., Ge Z., Robust Bayesian networks for low-quality data modeling and process monitoring applications
Ellensohn F., Spannagl M., Agabekov S., Venrooij J., Schwienbacher M., Rixen D., A hybrid motion cueing algorithm
Zhu L., Cui Y., Takami G., Kanokogi H., Matsubara T., Scalable reinforcement learning for plant-wide control of vinyl acetate monomer process
Mercado-Uribe A., Moreno J.A., Homogeneous integral controllers for a magnetic suspension system
Kakoee A., Bakhshan Y., Barbier A., Bares P., Guardiola C., Modeling combustion timing in an RCCI engine by means of a control oriented model
Chen Q., Chen J., Lang X., Xie L., Lu S., Su H., Detection and diagnosis of oscillations in process control by fast adaptive chirp mode decomposition
Hutter R., Hänggi S., Albin T., Onder C.H., Optimal transition control between combustion modes in a Diesel-ignited gas engine
Viljoen J.H., Muller C.J., Craig I.K., Hybrid nonlinear model predictive control of a cooling water network

Back to the contents

4.10. Mechatronics

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

Mechatronics
Vol. 66
April 2020

Papers:

Simoni L., Beschi M., Visioli A., Åström K.J., Inclusion of the dwell time effect in the LuGre friction model
Al-Jodah A., Shirinzadeh B., Ghafarian M., Das T.K., Tian Y., Zhang D., Wang F., Development and control of a large range XYΘ micropositioning stage
Jeong H., Lee K., Kim W., Lee I., Oh J.-H., Design and control of the rapid legged platform GAZELLE
Sapinski B., Jastrzebski L., Goldasz J., Electrical harmonic oscillator with MR damper and energy harvester operating as TMD: Experimental study

Hamed A., Masouleh M.T., Kalhor A., Design & characterization of a bio-inspired 3-DOF Tactile/Force sensor and implementation on a 3-DOF decoupled parallel mechanism for human-robot interaction purposes
Renner A., Wind H., Sawodny O., Online payload estimation for hydraulically actuated manipulators
Baček T., Moltedo M., Geeroms J., Vanderborght B., Rodriguez-Guerrero C., Lefeber D., Varying mechanical compliance benefits energy efficiency of a knee joint actuator
Fan Y., Liu S., Belabbas M.-A., Mid-air motion planning of robot using heat flow method with state constraints

Back to the contents

4.11. Journal of Process Control

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

Journal of Process Control
Vol. 87
March 2020

Papers:

Chen S., Yu J., Wang S., One-dimensional convolutional auto-encoder-based feature learning for fault diagnosis of multivariate processes
Wan Y., Puig V., Ocampo-Martinez C., Wang Y., Harinath E., Braatz R.D., Fault detection for uncertain LPV systems using probabilistic set-membership parity relation
Kim J.W., Park B.J., Yoo H., Oh T.H., Lee J.H., Lee J.M., A model-based deep reinforcement learning method applied to finite-horizon optimal control of nonlinear control-affine system
Pravin P.S., Misra S., Bhartiya S., Gudi R.D., A reactive scheduling and control framework for integration of renewable energy sources with a reformer-based fuel cell system and an energy storage device
Hamadouche A., Model-free direct fault detection and classification
Djema W., Bernard O., Giraldi L., Separating two species of microalgae in photobioreactors in minimal time
Reis de Souza A., Efimov D., Polyakov A., Gouzé J.-L., Robust stabilization of competing species in the chemostat
Lucchese R., Birk W., Computing the allowable uncertainty of sparse control configurations
Yao L., Ge Z., Refining data-driven soft sensor modeling framework with variable time reconstruction
Robles-Magdaleno J.L., Rodríguez-Mata A.E., Farza M., M'Saad M., A filtered high gain observer for a class of non uniformly observable systems – Application to a phytoplanktonic growth model
Moreno J.A., Asymptotic tracking and disturbance rejection of time-varying signals with a discontinuous PID controller
Papasavvas A., François G., Output modifier adaptation with filter-based constraints
Brivadis L., Andrieu V., Chabanon É., Gagnière É., Lebaz N., Serres U., New dynamical observer for a batch crystallization process based on solute concentration
Kamaruddin B., Zabiri H., Mohd Amiruddin A.A.A., Teh W.K., Ramasamy M., Jeremiah S.S., A simple model-free butterfly shape-based detection (BSD) method integrated with deep learning CNN for valve stiction detection and quantification

Back to the contents

4.12. Nonlinear Analysis: Hybrid Systems

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

Nonlinear Analysis: Hybrid Systems
Vol. 36
May 2020

Papers:

Staunton E.J., Piiroinen P.T., Estimating the dynamics of systems with noisy boundaries
Adly S., Haddad T., Well-Posedness of nonconvex degenerate sweeping process via unconstrained evolution problems
Djemai M., Defoort M., Martynyuk A.A., Stability, control and observation on non-uniform time domain
Zhao C., Zhong S., Zhong Q., Shi K., Synchronization of Markovian complex networks with input mode delay and Markovian directed communication via distributed dynamic event-triggered control
Tao T., Roy S., Baldi S., The issue of transients in leakage-based model reference adaptive control of switched linear systems
Liu Y., Arumugam A., Rathinasamy S., Alsaadi F.E., Event-triggered non-fragile finite-time guaranteed cost control for uncertain switched nonlinear networked systems
Smarra F., Di Girolamo G.D., De Iuliis V., Jain A., Mangharam R., D'Innocenzo A., Data-driven switching modeling for MPC using Regression Trees and Random Forests
Sun T., Sun X.-M., Gao Y., Sun P., Stabilizability analysis of logical networks with switching signal and control input
Wang G., Liu Y., Lu J., Wang Z., Stability analysis of totally positive switched linear systems with average dwell time switching
Xiang W., Stabilization for continuous-time switched linear systems: A mixed switching scheme
Lavaei A., Soudjani S., Zamani M., Compositional abstraction of large-scale stochastic systems: A relaxed dissipativity approach
Han H., Sanfelice R.G., Linear temporal logic for hybrid dynamical systems: Characterizations and sufficient conditions
Vázquez C.R., Gómez-Gutiérrez D., Ramírez-Teviño A., Observer design for Linear Hybrid Systems with unknown inputs and Petri-net discrete dynamics
He S., Yu W., Lv Y., Wang Z., Zhang D., Consensus for hybrid multi-agent systems with pulse-modulated protocols
Lou Z.-E., Ma R., Sun Z., Immersion and invariance stabilization for a class of nonlinear switched systems with average dwell time
Wang Y., Zhuang G., Chen X., Wang Z., Chen F., Dynamic event-based finite-time mixed H-Infinity and passive asynchronous filtering for T–S fuzzy singular Markov jump systems with general transition rates
Bahreini M., Zarei J., Robust finite-time fault-tolerant control for networked control systems with random delays: A Markovian jump system approach
Yuan J., Wu C., Ye J., Xie J., Robust identification of nonlinear state-dependent impulsive switched system with switching duration constraints
Liu Q., Zhao J., Switched adaptive observers design for a class of switched uncertain nonlinear systems
Li H., Li C., Huang J., A hybrid impulsive and sampled-data control framework for a class of nonlinear dynamical systems with input constraints

Zhong Z., Zhu Y., Basin M.V., Lam H.-K., Event-based multirate control of large-scale distributed nonlinear systems subject to time-driven zero order holds
Rutledge K., Yong S.Z., Ozay N., Finite horizon constrained control and bounded-error estimation in the presence of missing data
García Soto M., Prabhakar P., Abstraction based verification of stability of polyhedral switched systems
Legat B., Tabuada P., Jungers R.M., Sum-of-Squares methods for controlled invariant sets with applications to model-predictive control
Malik A., Roop P., A dynamic Quantized State System execution framework for Hybrid Automata
Colombo L.J., Eyrea Irazú M.E., Symmetries and periodic orbits in simple hybrid Routhian systems
De Santis E., Di Benedetto M.D., Fiore G., Pola G., Approximate predictability of Pseudo-Metric Systems
Liu X., Chen D., Liu Z., Wang Y.-W., Distributed leaderless impulsive consensus of non-linear multi-agent systems with input saturation
Wang C., Wu L., Shen J., Stability and L-Infinity performance analysis of positive systems with bounded time-varying delays on time scales
Wang B., Feng J.-E., Li H., Yu Y., On detectability of Boolean control networks
Cao Z., Niu Y., Finite-time stochastic boundedness of Markovian jump systems: A sliding-mode-based hybrid design method
Cai Z., Huang L., Wang Z., Mono/multi-periodicity generated by impulses control in time-delayed memristor-based neural networks
Le Coënt A., Fribourg L., Vacher J., Wisniewski R., Probabilistic reachability and control synthesis for stochastic switched systems using the tamed Euler method
Li M., Liu M., Zhang Y., Asynchronous adaptive quantized feedback sliding mode control for semi-markovian jump systems: An event-triggered approach
Schürmann B., Vignali R., Prandini M., Althoff M., Set-based control for disturbed piecewise affine systems with state and actuation constraints
Ali M.S., Agalya R., Shekher V., Joo Y.H., Non-fragile sampled data control for stabilization of non-linear multi-agent system with additive time varying delays, Markovian jump and uncertain parameters
Yang Z., Wu M., Lin W., An efficient framework for barrier certificate generation of uncertain nonlinear hybrid systems
Jackson B.J., Davis J.M., An ergodic approach to Pötzsche–Siegmund–Wirth's region of exponential stability
Arbib C., De Santis E., Almost always observable hybrid systems
Zobiri F., Meslem N., Bidegaray-Fesquet B., Event-triggered stabilizing controllers for switched linear systems
Li M., Deng F., Ren H., Scaled consensus of multi-agent systems with switching topologies and communication noises
Tolić D., Stabilizing transmission intervals and delays in nonlinear networked control systems through hybrid-system-with-memory modeling and Lyapunov–Krasovskii arguments
He C., Li J., Event-based aperiodically intermittent pinning synchronization control strategy for linearly coupled complex networks

Back to the contents

4.13. European Journal of Control

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

European Journal of Control

Vol. 52
March 2020

Papers:

Yin Z., Luo J., Wei C., Robust prescribed performance control for Euler–Lagrange systems with practically finite-time stability, pg. 1 - 10
Ma T., Cao C., Estimation using L1 adaptive descriptor observer for multivariable systems with nonlinear uncertainties and measurement noises, pg. 11 - 18
Babu P.S., Xavier N., Bandyopadhyay B., Robust output regulation for state feedback descriptor systems with nonovershooting behavior, pg. 19 - 25
Wang L., Marconi L., Wen C., Su H., Robust output regulation for a class of nonlinear systems not detectable by the regulated output, pg. 26 - 33
Jayswal A., Preeti, An exact l1 penalty function method for multi-dimensional first-order PDE constrained control optimization problem, pg. 34 - 41
Berrahmoune L., A variational approach to constrained null controllability for the heat equation, pg. 42 - 48
Zeinali S., Shahrokhi M., Observer-based singularity free nonlinear controller for uncertain systems subject to input saturation, pg. 49 - 58
Hu J., Ding B., One-step ahead robust MPC for LPV model with bounded disturbance, pg. 59 - 66
Sayyaf N., Tavazoei M.S., Robust control of temperature during local hyperthermia of cancerous tumors, pg. 67 - 77
Yu J., Ji J., Miao Z., Zhou J., Region-based flocking control for networked robotic systems with communication delays, pg. 78 - 86
Romero J.G., Rodríguez-Cortés H., Asymptotic stability for a transformed nonlinear UAV model with a suspended load via energy shaping, pg. 87 - 96
Imani A., Montazeri-Gh M., Stability analysis of override logic system containing state feedback regulators and its application to gas turbine engines, pg. 97 – 107

Back to the contents

4.14. Systems & Control Letters

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

Systems & Control Letters
Vol. 136
February 2020

Papers:

Tian R., Yu Z., Zhang R., A closed-loop saddle point for zero-sum linear-quadratic stochastic differential games with mean-field type
Redmann M., An LT 2-error bound for time-limited balanced truncation
Terushkin M., Fridman E., Network-based control of a semilinear damped beam equation under point and pointlike measurements

Gilmore M.E., Guiver C., Logemann H., Semi-global incremental input-to-state stability of discrete-time Lur'e systems
Wang Z., Liu F., Zhao C., Ma Z., Wei W., Distributed optimal load frequency control considering nonsmooth cost functions
Chen Y., Zuo Z., Wang Y., Bipartite consensus for a network of wave equations with time-varying disturbances
Liu H., Hu P., Boundary sampled-data feedback stabilization for parabolic equations
Roy S., Xue M., Controllability-Gramian submatrices for a network consensus model
Komatsu H., Nakajima H., The Deficiency Zero Theorem and global asymptotic stability for a class of chemical reaction networks with arbitrary time delays
Hu W., Zhu Q., Stability analysis of impulsive stochastic delayed differential systems with unbounded delays
Chen J., Huang B., Zhu Q., Liu Y., Li L., Global convergence of the EM algorithm for ARX models with uncertain communication channels
Tran D., Yucelen T., Finite-time control of perturbed dynamical systems based on a generalized time transformation approach
Sarafrazi M.A., Kotta Ü., Bartosiewicz Z., Finite determination of accessibility and singular points of nonlinear systems: An algebraic approach
Borri A., Carravetta F., Palumbo P., Cubification of $\sigma\pi$-SDE and exact moment equations
Wang W., Chen W., Stochastic Nicholson-type delay system with regime switching
Kong F.H., Manchester I.R., Contraction analysis of nonlinear noncausal iterative learning control
Niu B., Liu M., Li A., Global adaptive stabilization of stochastic high-order switched nonlinear non-lower triangular systems

Back to the contents

4.15. ISA Transaction

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

ISA Transaction
Volumes 96–98
January, February, and March 2020

Papers:

Ma L., Dong J., Peng K., A novel key performance indicator oriented hierarchical monitoring and propagation path identification framework for complex industrial processes, pg. 1 - 13
Li J., Du J., Adaptive disturbance cancellation for a class of MIMO nonlinear Euler–Lagrange systems under input saturation, pg. 14 - 23
Tian Y., Yao H., Li Z., Plant-wide process monitoring by using weighted copula–correlation based multiblock principal component analysis approach and online-horizon Bayesian method, pg. 24 - 36
Li Y., Zhang H., Positive observer design for switched positive T–S fuzzy delayed systems with dwell time constraints, pg. 37 - 50
Zhang H., A binary cooperative bat algorithm based optimal topology design of leader–follower consensus, pg. 51 - 59

4.16. Journal of the Franklin Institute

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

Journal of the Franklin Institute
Vol. 357, Iss. 3
February 2020

Papers:

Yan S., Zhao D., Wang H., Matsushita S., Xu L., A novel constructive procedure to low-order Fornasini–Marchesini model realization, pg.1764 - 1789
Fan A., Li J., Wei C., Distributed prescribed performance pinning synchronization for complex dynamical networks with event-triggered communication protocols, pg.1790 - 1812
Ai X., Adaptive robust bipartite consensus of high-order uncertain multi-agent systems over cooperation-competition networks, pg.1813 - 1831
Li Y.-G., Yang G.-H., Optimal deception attacks against remote state estimation in cyber-physical systems, pg.1832 - 1852
Pourasghar M., Puig V., Ocampo-Martinez C., Characterisation of interval-observer fault detection and isolation properties using the set-invariance approach, pg.1853 - 1886
Wang S., Wang Z., Dong H., Alsaadi F.E., Recursive state estimation for linear systems with lossy measurements under time-correlated multiplicative noises, pg.1887 - 1908
Ning H., Zhang J., Feng T.-T., Chu E.K.-W., Tian T., Control-based algorithms for high dimensional online learning, pg.1909 - 1942
Lu L., Chen L., Zheng Z., Yu Y., Yang X., Behavior of the LMS algorithm with hyperbolic secant cost, pg.1943 - 1960

Back to the contents

4.17. IFAC Journal of Systems and Control

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

IFAC Journal of Systems and Control
Vol. 11
March 2020

Papers:

E.P. van Horssen, B.J. Janssen, A. Kumar, D. Antunes, W.P.M.H. Heemels, Image-based feedback control for drift compensation in an electron microscope
C.S.Y. Wong, S. Suresh, N. Sundararajan, A rolling horizon optimization approach for dynamic airspace sectorization
Tohru Katayama, A history of symposium on stochastic systems theory and its applications, Japan 1968-2018
Lilija Naiwert, David Ailabouni, Karlheinz Spinder, The possible states of a population of eusocial insects

Back to the contents

4.18. Journal of Pure and Applied Mathematics

Contributed by: Mammadova Gamar, twms.aliev@gmail.com

Journal of Pure and Applied Mathematics
ISSN 2076-2585
Volume 11, No. 1, 2020

Papers:

1. Fractional Hermite-Hadamard's Type Inequality for the Co-ordinates Convex Functions, T. Tunc, M.Z. Sarikaya, H. Yaldiz
2. Transportation of a BVP Including Generalized Cauchy- Riemann Equation to Fredholm Integral Equation, J.E. Golanbar, N. Aliyev, M. Jahanshahi
3. Using (JCLR)-Property to Prove Hybrid Fixed Point Theorems via Quasi F-Contractions, H.K. Nashine, M. Imdad, Md. Ahmadullah
4. A Study on Some New Results Arising from (p, q)-Calculus, U. Duran, M. Acikgoz,S. Araci
5. Affine Factorable Surfaces in Isotropic Spaces, M.E. Aydin, A. Erdur, M. Ergut
6. Estimation of Areas on Some Surfaces Defined by the System of Equations, I.Sh. Jabbarov, G.K. Hasanova
7. Lucas Polynomials and Applications to an Unified Class of Bi-univalent Functions Equipped with (P; Q)-Derivative Operator, Ş. Altinkaya , S. Yalcin
8. A Real Generalization of Dass-Gupta Fixed Point Theorem, M. Nazam, H. Aydi,M. Arshad
9. Mathematical and Numerical Modeling of the Coupled Dynamic Thermoelastic Problem for Isotropic Bodies, A. A. Qalandarov, A. A. Khaldjigitov

Back to the contents

4.19. CFP: Asian Journal of Control

Contributed by: Li-Chen Fu, lichen@ntu.edu.tw

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
Dr. Amit Surana United Technologies Research Center, USA SuranaA@utrc.utc.com

Important Dates:
April 30, 2020 Deadline for Submissions
July 31, 2020 Completion of First Review
September 30, 2020 Completion of Final Review
December 31, 2020 Receipt of Final Manuscript
March 31, 2021 (Tentatively Vol. 23, No. 2) Publication

Special Issue on "Emerging Control Techniques for Mechatronic and Transportation Systems"

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

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

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

Guest Editors:
Prof. Michael Basin Autonomous University of Nuevo, Mexico mbasin@fcfm.uanl.mx
Prof. Laura Celentano University of Naples Federico II, Italy laura.celentano@unina.it
Prof. Mohammed Chadli University of Paris-Saclay, Univ Evry, France mohammed.chadli@univ-evry.fr
Prof. Peng Shi Universiry of Adelaide, Australia peng.shi@adelaide.edu.au

Important Dates:
May 15, 2020 Deadline for Submissions
August 15, 2020 Completion of First Review
October 15, 2020 Completion of Final Review
December 15, 2020 Receipt of Final Manuscript
March 31, 2021 (Tentatively Vol. 23, No. 2) Publication

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

A large number of coupled systems in nature and society can be modeled by complex cyber-physical networks, whose normal functioning significantly relies on the tight interactions between its physical and cyber components. Many modern critical infrastructures can be appropriately modelled as complex cyber-physical networks. Typical examples of such infrastructures are power grids, the Internet, WWW, and public transportation systems. The ubiquity of such networked systems leads to many important and fascinating scientific problems concerning how network topologies and parameters affect collective dynamics, and how to control them. Analysis and control of complex cyber-physical networks have received a lot of attention recently, from various scientific and engineering communities.

Furthermore, revealing the fundamental properties and controlling the collective behaviors of networked systems not only can provide a better understanding of the emergence mechanisms for cooperative behaviors, but also can provide benefits to various applications of cyber-physical networked systems, such as smart grids, Internet of Things and unmanned aircraft systems.

The focus of this special issue is on new approaches to analysis and synthesis of complex cyber-physical networks as well as their potential practical applications. The special issue aims to establish a forum for international researchers from different fields of electrical engineering, bioinformatics, systems and control theory, and applied mathematics, to present and evaluate the most recent developments and new ideas on analysis and synthesis of complex cyber-physical networks, regarding both fundamental theory and practical applications. The topics to be covered include, but are not limited to:

- Analysis and coordination control of complex cyber-physical networks
- Bio-inspired control techniques for networked systems
- Big-data mining and analysis over complex cyber-physical networks
- Controllability and observability of complex cyber-physical networks
- Distributed cognitive architectures in robotic networks
- Distributed control and estimation of multi-agent networks
- Distributed optimization of multi-agent networks
- Deep learning and intelligent control of complex cyber-physical networks
- Distributed machine learning in complex cyber-physical networks
- Distributed reinforcement learning techniques for networked systems
- Energy management and distributed intelligent control of smart grids
- Efficient privacy protection and security of complex cyber-physical networks
- Efficient privacy protection and security of complex cyber-physical networks
- Finite-time and fixed-time control of complex cyber-physical networks
- Game analysis and control over complex cyber-physical networks

Guest Editors:

Prof. Guanghui Wen Research Center for Complex Systems and Network Sciences, School of Mathematics, Southeast University, China ghwen@seu.edu.cn

Prof. Mahdi Jalili School of Engineering, RMIT University, Australia mahdi.jalili@rmit.edu.au

Prof. Wei Ren Department of Electrical Engineering, University of California, Riverside, USA ren@ee.ucr.edu

Guest Editorial Committee:
Prof. Yongcan Cao Department of Electrical and Computer Engineering, University of Texas at San Antonio, USA yongcan.cao@utsa.edu
Prof. Haibo Du School of Electrical Engineering and Automation, Hefei University of Technology, China haibo.du@hfut.edu.cn
Prof. Guanrong Chen Department of Electrical Engineering, City University of Hong Kong, China eegchen@cityu.edu.hk

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

Back to the contents

4.20. CFP: Journal of The Franklin Institute
Contributed by: Márcio J. Lacerda, lacerda@ufsj.edu.br

Journal of The Franklin Institute Call for papers Special Issue on: High Fidelity LPV Systems under Constraints

Linear Parameter Varying (LPV) systems have received significant attention from the control community in the last decades. The main advantage of these systems is their ability to provide a good representation of the dynamics while keeping simple its mathematical representation. As a consequence, many practical applications with high-performance requirements, such as vehicles, aerospace systems, and chemical processes dynamics, are benefited by such an approach. Furthermore, the LPV formulation allows designing gain-scheduling controllers and filters as well as providing stability and robust performance certificates.

Because we cannot escape from constraints in practical systems, the LPV approach can be a suitable choice to address more realistic scenarios by considering the unavoidable presence of constraints in sensors, control signals, outputs, and systems' state and parameters, which may restrict the allowed operational region reflecting, for instance, physical constraints and operational security. Also, LPV systems subject to sample data control or network control may include constraints due to the sample-time period employed, leading to new theoretical and practical challenges to ensure stability and performance to the closed-loop LPV system. Furthermore, switching or switched systems may arise as particular cases of LPV systems where, besides the mentioned constraints, they may be affected by imprecise knowledge on the active mode. In all cases, the main issue concerns addressing constraints in the design stage, ensuring the designed controllers to achieve closed-loop stability and the desired performance. Similarly, filtering design is directly affected in the case of constraints of the signals.

The main goal of this special issue is to highlight the exciting potential of the LPV framework as a solution for constrained systems aiming at reducing the gap between theory and applications. The focus is on methodologies capable of quantifying and mitigating the adverse effects of constraints in LPV systems. We invite works handling constraints in controller design, as well as in filtering and estimation, possibly

including experimental tests.

Contributions should consider, but are not limited to, the following topics, on high fidelity LPV systems under constraints:
1. Gain scheduling control and filter design for systems under input, state, and output constraints.
2. Switched or switching LPV control systems under constraints and imprecise active mode.
3. Inexactly scheduling and bounded parameters' variation, time-delay, hysteresis, and varying sampling-period.
4. Filter design and estimation under constraint signals for LPV systems.
5. Estimation of the region of attraction for LPV systems under the presence of constraints.
6. LPV systems driven by constrained rational polynomial controllers.
7. Sampled data LPV systems under constraints.
8. Networked LPV systems subject to packet loss, network delay, and bandwidth limitation.
9. Applications of constrained LPV based models in experimental tests on industrial plants or pilot processes.

Submission Details: Information on the submission process and manuscript format can be found at:
https://www.journals.elsevier.com/journal-of-the-franklin-institute/call-for-papers/special-issue-high-fidelity-lpv-systems-under-constraints

Guest Editors:
- Dr. Márcio J. Lacerda, Federal University of São João del-Rei - UFSJ; lacerda@ufsj.edu.br
- Dr. Fergani Soheib; Laboratoire d'Analyse et d'Architecture des Systèmes, LAAS-CNRS; sfergani@laas.fr
- Dr. Masayuki Sato ; Japan Aerospace Exploration Agency; sato.masayuki@jaxa.jp
- Dr. Valter J. S. Leite; Federal Center for Technological Education of Minas Gerais; valter@ieee.org
- Dr. Fen Wu; North Carolina State University; fwu@ncsu.edu

Submission Deadline: June 10th, 2020

Back to the contents

5 Conferences and Workshops

5.1. World Congress: Math Problems in Engineering & Aerospace, Czech Republic

Contributed by: Seenith Sivasundaram, seenithi@gmail.com

World Congress: Mathematical Problems in Engineering, Aerospace, and Sciences
When: Date: June 23-26, 2020
Where: Location: Czech Technical University in Prague, Prague, Czech Republic
Website: http://www.icnpaa.com
http://www.icnpaa.com/index.php/icnpaa/ICNPAA2020

ICNPAA's AIM: Mathematical Problems in Engineering, Aerospace, and Science have stimulated cooperation among scientists from a variety of disciplines. Developments in computer technology have additionally allowed for solutions to mathematical problems. This international forum will extend scholarly cooperation and collaboration, encouraging the dissemination of ideas and information.

The conference will have a pool of active researchers, with a proper balance between academia and industry, as well as between senior and junior researchers, including graduate students and post-doctoral fellows. It is anticipated that such a balance will provide both senior and junior researchers an opportunity to interact and to have a wider picture of recent advances in their respective fields. The conference, especially, enables the setting up of new interdisciplinary research directions among its participants by establishing links with world-renowned researchers, making possible joint international projects that will no doubt bring about fresh and innovative ideas and technologies in engineering, aerospace, and sciences.

Co-Sponsored by:
- AIAA: American Institute of Aeronautics and Astronautics
- IFIP: International Federation of Information Processing
- CTU: Czech Technical University in Prague, Prague, Czech Republic

The proceedings will be published by the American Institute of Physics. AIP Conference Proceedings are indexed in:
• Astrophysics Data System(ADS)
• Chemical Abstracts Service (CAS)
• Crossref
• EBSCO Publishing
• Electronic Library Information Navigator (ELIN), Sweden
• Elsevier – SCOPUS
• International Atomic Energy Agency (IAEA)
• Thomson Reuters (ISI)

Back to the contents

5.2. Allerton Conference on Communication, Control, and Computing, USA

Contributed by: Peggy Wells, pwells@illinois.edu

58th Allerton Conference on Communication, Control, and Computing – September 29-October 2, 2020

CONFERENCE CO-CHAIRS — Alejandro Dominguez-Garcia and Max Raginsky
Call for Papers: Submission Deadline: July 6, 2020

Manuscripts can be submitted from June 12-July 6, 2020 with the submission deadline of July 6th being firm. Please follow the instructions at allerton.csl.illinois.edu.

IMPORTANT DATES

JULY 6 — Submission Deadline

AUGUST 3 —Author Notification - Authors will be notified of acceptance via email by August 6, 2020, at which time they will also be sent detailed instructions for the preparation of their papers for the Conference Proceedings.

AFTER AUGUST 7 — Registration Opens

SEPTEMBER 29 — Opening Tutorial Lectures given by Mihailo Jovanovic and Tamara Broderick at the Coordinated Science Lab, University of Illinois at Urbana-Champaign

SEPTEMBER 30-OCTOBER 2 — Conference Sessions at the University of Illinois Allerton Park & Retreat Center. The Allerton House is located 26 miles southwest of the Urbana-Champaign campus of the University of Illinois in a wooded area on the Sangamon River. It is part of the 1,500 acre Robert Allerton Park, a complex of natural and man-made beauty designated as a National natural landmark. Allerton Park has 20 miles of well-maintained trails and a living gallery of formal gardens, studded with sculptures collected from around the world.

PLENARY SPEAKER — To Be Announced

OCTOBER 4 — Final Paper Deadline Final versions of papers that are presented at the conference must be submitted electronically in order to appear in the Conference Proceedings and IEEE Xplore.

Back to the contents

5.3. International Conference on Control, Modeling and Computing, Canada

Contributed by: Alfia Leo, cmcconf@yahoo.com

6th International Conference on Control, Modeling and Computing (CMC 2020)
https://icaita2020.org/cmc/index.html
July 11 12, 2020, Toronto, Canada

Scope: The 6th International Conference on Control, Modeling and Computing (CMC 2020) will provide an excellent international forum for sharing knowledge and results in theory, methodology and applications of Control Engineering, Modeling, Computing and Applications. The goal of this Conference is to bring together researchers and practitioners from academia and industry to focus on understanding modern control engineering, Modeling and Computing concepts and establishing new collaborations in these areas.

Authors are solicited to contribute to the conference by submitting articles that illustrate research results, projects, surveying works and industrial experiences that describe significant advances in the areas of control engineering, modeling and computing.

Topics of Interest
* Adaptive Control
* Applications of Modeling in Science and Engineering
* Automation Systems
* Computer Controlled Systems
* Computer Vision
* Computational Science
* Control Devices and Instruments
* Control Theory
* Data Mining
* Design System and Algorithms
* Embedded Systems
* Fault Detection and Isolation
* Flight Control and Surveillance Systems
* Genetic Algorithms and Evolutionary Computing
* Guidance Control Systems
* Industry, Military and Space Applications
* Information Systems
* Intelligent Control Systems
* Linear and Nonlinear Control Systems
* Mathematical Modeling and Control
* Measurement Systems
* Multimedia Systems
* Networks and Communication
* Neural Networks and Fuzzy Logic
* Optimization and Optimal Control
* Process Control and Instrumentation
* Robotics
* Robust Control
* Scientific Computing
* Signal and Image Processing
* Simulation Techniques
* Soft Computing Techniques
* Stochastic Control and Filtering
* Systems and Automation

* System Identification and Control

Paper Submission: Authors are invited to submit papers through the Submission System. Submissions must be original and should not have been published previously or be under consideration for publication while being evaluated for this conference. The proceedings of the conference will be published by Computer Science Conference Proceedings in Computer Science & Information Technology (CS&IT) series(Confirmed).

Important Dates: Check website for regular date updates. Here's where you can reach us: cmcconf@yahoo.com or cmc@icaita2020.org

Back to the contents

5.4. ACC Workshop: The Confluence of Vision and Control, USA

Contributed by: Ashwin Dani, ashwin.dani@uconn.edu

2020 ACC Workshop on "The Confluence of Vision and Control"

We are organizing a workshop on the confluence of vision and control at the 2020 American Controls Conference in Denver, CO. The workshop date is June 30, 2020. The confirmed speakers are:
• Randy Beard, Brigham Young University
• Ashwin Dani, University of Connecticut
• Warren Dixon, University of Florida
• Kaveh Fathian, MIT
• Nicholas Gans, UT – Arlington Research Institute
• Takeshi Hatanaka, Osaka University
• Guoqiang Hu, Nanyang Technological University
• Romeil Sandhu, Stony Brook University
• Roberto Tron, Boston University
• Eddie Tunstel, United Technology Research Center
• Patricio Vela, Georgia Tech

More information on the workshop can be accessed at: https://sites.google.com/view/2020accworkshop
For workshop registration please visit: https://css.paperplaza.net/registration/index.php.

We are requesting abstract submissions for the poster session on the topics related to the confluence of vision and control. The posters will be selected based on the abstracts. Please send poster abstracts to the organizers at nick.gans@uta.edu, and ashwin.dani@uconn.edu.

The timeline for abstract submission & selection is:
- Abstract submission due: March 31st, 2020
- Abstract selection notification: April 15th, 2020

Back to the contents

5.5. ACC Workshop: Extremum Seeking Control in Biomedical Applications, USA

Contributed by: Nicholas Gans, ngans@uta.edu

American Controls Conference 2020 Workshop on "Extremum Seeking Control in Biomedical Applications"
Call for Posters
Date: June 30, 2020
Location: The Sheraton Denver Downtown Hotel, Denver, CO, USA

Poster Session:
Abstract submission due: March 31st, 2020
Abstract selection notification: April 15th, 2020

Description: Biomedical systems are notoriously difficult to model. This difficulty stems from the variation in physiology between subjects. Furthermore, an individual subject will often vary over the course of a day, a week, etc. This difficulty in modeling makes it difficult to implement optimal control solutions. Extremum Seeking Control (ESC) is a method of model-free adaptive control that modifies the arguments of a cost function to guide them to a local maximum or minimum. The versatility and model-free nature of ESC makes them very well suited for biomedical control applications. We will present ten recent results in applying ESC to a wide variety of biomedical problems, including powered prosthetics and orthotics, medication delivery, rehabilitation therapy, and assistive heart pumps. We seek to highlight the strengths of ESC in biomedical applications and spur further research and development in the community who may not have considered this powerful approach.

The confirmed speakers are:
• Victor Duenas, Syracuse University
• Hosam Fathy, The University of Maryland
• Nicholas Gans, The University of Texas at Arlington
• Robert Gregg, The University of Michigan
• Martin Guay, Queen's University
• Saurav Kumar, The University of Texas at Dallas,
• Peiman Naseradinmousavi, The University of California at San Diego
• Miroslav Krstic, The University of California at San Diego
• Tiago Roux Oliveira, State University of Rio de Janeiro
• Yan Ting, The University of Melbourne

More information on the workshop can be accessed at: https://sites.google.com/view/esc4biomed

For workshop registration please visit: https://css.paperplaza.net/registration/index.php.

We are requesting abstract submissions for the poster session on the topics related to optimization, optical control and biomedical applications. The posters will be selected based on the abstracts. Please send poster abstracts to the organizers at saurav@utdallas.edu.

For questions, please contact the organizers:
- Nick Gans – ngans@uta.edu

- Saurav Kumar - saurav@utdallas.edu
- Robert Gregg - rdgregg@umich.edu

Back to the contents

5.6. Postponed: Workshop on Nonlinear Systems and Control, USA

Contributed by: Xiaobo Tan, xbtan@egr.msu.edu

Due to the coronavirus outbreak, the following workshop, originally scheduled for April 18, 2020, has now been postponed. It will be rescheduled after the outbreak is over.

Please check back the website https://www.egr.msu.edu/khalilworkshop2020/home for updates.

Workshop on Nonlinear Systems and Control, in Celebration of Hassan Khalil's 70th Birthday

Hassan Khalil has been a wonderful mentor, colleague and friend to many of us working in control systems during his illustrious career spanning over four decades. In celebration of his 70th birthday and retirement, a Workshop on Nonlinear Systems and Control will be held on April 18, 2020, Saturday, at the Marriott East Lansing at University Place, East Lansing, Michigan. The workshop will consist of a number of invited talks by distinguished speakers and conclude with a dinner banquet for invited guests.

The confirmed speakers:
• Jeff Ahrens, Corning Inc.
• Tamer Basar, University of Illinois at Urbana-Champaign
• Jay Farrell, University of California, Riverside
• Zoran Gajic, Rutgers University
• Jessy Grizzle, University of Michigan, Ann Arbor
• Alberto Isidori, University of Rome "La Sapienza"
• Miroslav Krstic, University of California, San Diego
• Daniel Liberzon, University of Illinois at Urbana-Champaign
• Zongli Lin, University of Virginia
• Alexis Prasov, MIT Lincoln Lab
• Jing Sun, University of Michigan, Ann Arbor
• Andrew Teel, University of California, Santa Barbara
• Petar Kokotovic (dinner speaker)

For additional information and (complimentary) registration, please visit:
https://www.egr.msu.edu/khalilworkshop2020/home

Back to the contents

5.7. Workshop on Variable Structure Systems and Sliding Mode Control, Brazil

Contributed by: Tiago Roux Oliveira, tiagoroux@uerj.br

16th International Workshop on Variable Structure Systems and Sliding Mode Control (VSS 2020)

Dear Colleagues,

It is our pleasure to announce the submission for the 16th International Workshop on Variable Structure Systems and Sliding Mode Control (VSS 2020), 9-11 September, 2020, has been opened since February 2020. We invite you to submit your papers through:
https://controls.papercept.net/conferences/scripts/start.pl

More information can be found in the updated VSS 2020 website:
https://bit.ly/2WbhzBM

If you have any doubt, please do not hesitate in contacting us. Are you ready? Here come the good times! Hope to see you in Rio de Janeiro - Brazil.

Best regards,
Tiago Roux Oliveira
Liu Hsu
Leonid Fridman
(General Chairs of VSS 2020)
E-mail: vss2020@lee.uerj.br

Back to the contents

5.8. International Conference on Control, Automation and Systems, South Korea

Contributed by: Zee Yeon Lee, conference@icros.org

2020 The 20th International Conference on Control, Automation and Systems (ICCAS 2020)
October 13–16, 2020, BEXCO, Busan, Korea
http://2020.iccas.org

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

Paper Submission: The conference invites three types of submission: ”Regular Paper”, ”Research Poster Paper”, and ”Organized (Invited) Session/Mini-symposium Paper”.

Indexed in: IEEE Xplore, EI compendex, and SCOPUS. ICCAS 2020 will be held on October 13–16, 2020 at BEXCO in Busan, Korea.

Plenary Speakers:
- Prof. Francesco Bullo (Univ. of California, Santa Barbara,USA)
- Dr. Shuuji Kajita (National Institute of Advanced Industrial Science and Technology (AIST), Japan)
- Prof. Anna Stefanopoulou (University of Michigan,USA)

Organizing Committee:
- General Chair: Duk Hyun Kang (RS Automation, Korea)
- General Co-Chair: Kyung-Soo Kim (KAIST, Korea)
- Program Co-Chairs: Hyo-Sung Ahn (GIST, Korea), Hyungbo Shim (Seoul National Univ., Korea)

Organized by Institute of Control, Robotics and Systems (ICROS)

Back to the contents

5.9. IFAC 2020 World Congress News, Germany

Contributed by: Frank Allgower, allgower@ist.uni-stuttgart.de

21st IFAC World Congress in Berlin, Germany, July 12-17, 2020:
Conference format – early registration deadline – virtual participation registration option

We all are facing tremendous challenges due to the COVID-19 pandemic outbreak, and we are experiencing serious impacts on all our private and professional lives. The IFAC 2020 organizing team very much hopes that you and your loved ones are well and that it stays this way. This is our most important wish and concern at the moment!

Amid this dynamically evolving situation the IFAC 2020 organizers are continuously monitoring the developments and working on measures for impact mitigation on the 21st IFAC World Congress.

The top priority of our actions is the health and safety of our participants and volunteers. Moreover we want to preserve the big efforts and investments made by our community, for example by contributing the record number of 4330 submissions, successfully accomplishing a thorough review process with 12928 reviews, but also the financial and organizational efforts made by the IFAC 2020 organizers.

After so much effort from all sides, the Congress organizers are not willing to give up and cancel the congress. However, a "normal" congress as originally planned, also seems unlikely. This is why we are exploring various alternative options since a number of weeks. These options span from holding a hybrid meeting (with some participants attending and presenting in person and others participating and presenting remotely), a pure virtual meeting, or a shift of the congress to a later time.

In any case, whatever format IFAC 2020 will have, all authors can be assured that all accepted and registered papers will be published in 2020 on IFAC-PapersOnLine as planned.To account for the current uncertain situation it was decided to extend the deadlines for the submission of final papers and for early registration to May 9, 2020.

In addition, and especially in order to further reduce some of the uncertainties for prospective participants, IFAC 2020 has introduced a new registration option: virtual participation. The new option allows authors to virtually present and to publish their contributions without requiring personal on-site presence. In case a further in-person congress format will be provided, authors can upgrade their registration to a physical participation at any time.

Frank Allgöwer (IFAC President) & Klaus Janschek (General Chair IFAC 2020) for the whole IFAC 2020 Organizing Team

Back to the contents

6 Positions

6.1. PhD: TU Delft, The Netherlands

Contributed by: Laura Ferranti, l.ferranti@tudelft.nl

PhD Position: Safe Cooperation of Autonomous Vehicles in Mixed Traffic Job description

Autonomous vehicles (such as cars and vessels) will be widespread in our daily lives, aiming at reducing pollution while improving traffic efficiency and safety. The ability of these vehicles to cooperate in planning trajectories is one of the main strengths of this technology. The presence of human-operated vehicles and the occurrence of sensor/actuator faults, however, complicate the vehicle cooperation. Failing to handle these mixed-traffic uncertainties and faults in the motion planning strategy can inevitably compromise the cooperation. The goal of this project (SCoop) is to design a cooperation framework to allow autonomous vehicles to safely navigate in the presence of human-operated vehicles and faults. To design a novel safe cooperation framework, the project will rely on tools for uncertainty estimation/fault diagnosis and distributed motion planning. Experiments on real autonomous surface vessels (ASVs) will demonstrate the effectiveness of the proposed design. SCoop is a Cohesion project between the Cognitive Robotics Department and the Maritime and Transport Technology Department.

In this project, you as a PhD candidate will investigate how to design a motion planner for an autonomous vehicle that: (1) deals with mixed-traffic uncertainties and faults to avoid collisions and deadlocks by discriminating between local and propagated faults; (2) estimates these uncertainties and faults in the local motion planning; (3) combines the design of the uncertainty estimation, fault detection and isolation and local motion planning. The multi-vehicle coordination methods that will be developed in this project will be tested and verified through their application to autonomous vessels in the ResearchLab Autonomous Shipping (RAS).

Requirements: The candidate has a very good MSc degree in Systems and Control, Mechanical Engineering, Applied Mathematics, or a related field. The candidate must have strong analytical skills and must be able to work at the intersection of several research domains. Good programming skills and experience with MATLAB and ROS are of foremost importance to implement the proposed designs on real ASVs. A very good command of the English language is required, as well as excellent communication skills. Candidates having exhibited their ability to perform research in control, optimization, system identification, and/or robotics are especially encouraged to apply.

Employer: Delft University of Technology (TU Delft) is a multifaceted institution offering education and carrying out research in the technical sciences at an internationally recognized level. Education, research and design are strongly oriented towards applicability. TU Delft develops technologies for future generations, focusing on sustainability, safety and economic vitality. At TU Delft you will work in an environment where technical sciences and society converge. TU Delft comprises eight faculties, unique laboratories, research institutes and schools. https://www.tudelft.nl

The faculty Mechanical, Maritime and Materials Engineering (3mE) trains committed engineering students, PhD candidates and post-doctoral researchers in groundbreaking scientific research in the fields of mechanical, maritime and materials engineering. 3mE is the epitome of a dynamic, innovative faculty, with a Eu-

ropean scope that contributes demonstrable economic and social benefits. https://www.tudelft.nl/en/3me

The main focus of the Cognitive Robotics department is the development of intelligent robots and vehicles that will advance mobility, productivity and quality of life. Our mission is to bring robotic solutions to human-inhabited environments, focusing on research in the areas of machine perception, motion planning and control, machine learning, automatic control and physical interaction of intelligent machines with humans. We combine fundamental research with work on physical demonstrators in areas such as self-driving vehicles, collaborative industrial robots, mobile manipulators and haptic interfaces. Strong collaborations exist with cross-faculty institutes TU Delft Robotics Institute and TU Delft Transport Institute), our national robotic ecosystem (RoboValley, Holland Robotics) and international industry and academia. http://www.cor.tudelft.nl/

The Department of Maritime and Transport Technology (M&TT) studies how to develop, design, build and operate marine, dredging and transport systems and their equipment. New generation transport and marine systems require the further development of the knowledge of the dynamics and the physical processes involved in transport, dredging and marine systems, the logistics of the systems and the interaction between the equipment and control systems.

Additional information: If you have specific questions about this position, please contact Dr. Laura Ferranti (email: L.Ferranti@tudelft.nl), Dr. Vasso Reppa (email: v.reppa@tudelft.nl), or Prof. R.R. Negenborn (email: r.r.negenborn@tudelft.nl). Always specify the vacancy number 3mE20-15 in the email subject. Please do not send application emails to these email addresses but use the specified address below (application-3mE@tudelft.nl).

To apply, please prepare:
• a letter of motivation explaining why you are the right candidate for this project,
• a detailed CV,
• a complete record of Bachelor and Master courses (including grades),
• your Master Thesis (at least as draft),
• any publications, and a list of projects you have worked on with brief descriptions of your contributions (max 2 pages),
• the names and contact addresses of two or three references.

All these items should be combined in one PDF document. Applications should be submitted by email at the earliest convenience to application-3mE@tudelft.nl. When applying for this position, please refer to vacancy number 3mE20-15. The review of applications will start on April 1st, 2020 and continue until the position is filled. The intended starting date is June 1st, 2020.

Back to the contents

6.2. PhD: Kent State University, USA

Contributed by: Hossein Mirinejad, mirinejad.kent@gmail.com

Ph.D. Position - Controls and Autonomous Systems

A fully-funded Ph.D. position is 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 Summer 2020. Review of applicants will start very soon, so the prospective students are encouraged to apply as soon as possible.

Basic Requirements: Prospective students should have received their master's degree or will receive it by the end of Spring 2020. 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 mirinejad.kent@gmail.com. Your CV should include your test scores (TOEFL & GRE), list of publications, and references.

Back to the contents

6.3. PhD: Eindhoven University of Technology, The Netherlands

Contributed by: Nathan van de Wouw, N.v.d.Wouw@tue.nl

In the scope of the Dutch Top Consortia for Knowledge and Innovation regarding High-tech Systems and Materials, a collaborative project between the company ASML, https://www.asml.com/en, and the Eindhoven University of Technology, www.tue.nl, has been established. Within this project, the Eindhoven University of Technology, The Netherlands, offers a PhD position at the Department of Mechanical Engineering on "Model Reduction in a Modular Framework: Model Reduction for Structural Dynamics in High-tech Semiconductor Equipment."

Project Description: The scientific objective of this project is to develop a modular framework for model complexity reduction for structural dynamics models for complex high-tech semiconductor equipment.

The development of high-tech production machines in the semiconductor industry relies upon an accurate description of the machine dynamic architecture. In order to evaluate the machine dynamic performance under relevant operational conditions, or to determine design specifications during different phases of the design, high-fidelity structural dynamics models are required. As details become ever more important, these models become more complex. This complexity results in longer development cycle times, in longer time to market and it obstructs essential engineering insight in relevant design aspects, which may lead to sub-optimal designs. Therefore, ASML needs modular reduction techniques that generate component

model representations that are 1) simple (of reduced order), 2) accurate on both component and assembly level, and 3) useful in a design and/or integration environment.

Project goals: This Ph.D. project takes on the following main scientific challenge: how to construct reduced-complexity component models for the structural dynamics of semi-conductor equipment that
1. can be systematically integrated to form accurate assembly models,
2. are simple enough to allow for extensive, though computationally feasible, dynamic analysis in support of design decision-making,
3. allow for the physical interpretation of these models (engineers need to be able to employ these models in the design cycle),
4. can be used to predict both local component behavior as well as global assembly properties?

Given the above open challenges, the main goal of this project is "To develop a modular approach for the model reduction of structural dynamics models for high-tech semi-conductor equipment."

Requirements: The Ph.D. candidate should have
• an M.Sc. degree in Mechanical Engineering, or Systems and Control with a solid background in the mathematical dynamical modeling of mechanical systems, model reduction and systems and control theory.
• a strong interest and skills in both 1) developing new fundamental theories for the model reduction of complex dynamical systems and 2) applying such novel scientific developments to industrial applications.
• excellent communication skills and written/verbal knowledge of the English language.
Interviews with the selected PhD-candidates will take place on-site at TU/e (the Netherlands).

The starting date is flexible but ideally would be as soon as possible and ultimately before December 2020. The appointment will be for 4 years. As an employee of the Eindhoven University of Technology, PhD students receive both a competitive salary and excellent secondary benefits.

Application: Online application via
https://jobs.tue.nl/en/vacancy/phd-position-on-model-reduction-in-a-modular-framework-846821.html

Please provide the following information:
- An extended curriculum vitae,
- an explanation of your interest in the proposed research topic,
- your course program and corresponding grades,
- references,
- all other information that might help us to assess your suitability for one of these positions and
- a publication list (if applicable).

Information: For more information on the vacancy and the project, please contact Nathan van de Wouw, N.v.d.Wouw@tue.nl

Back to the contents

6.4. PhD: Université de Lorraine, France

Contributed by: Romain Postoyan, romain.postoyan@univ-lorraine.fr

PhD position at Université de Lorraine, Nancy (France)

A fully funded PhD studentship is available on the development of hybrid techniques for observer design. The PhD will be carried out at in the "Centre de Recherche en Automatic de Nancy" (CNRS) at Université de Lorraine (Nancy, France), under the supervision of Dr. Romain Postoyan in collaboration with Prof. Dragan Nesic (The University of Melbourne, Australia). A several month-research period at the University of Melbourne will be planned for the PhD student.

More details on the proposed research project are available here:
https://tinyurl.com/r4u5xp3
Please do not hesitate to contact Dr. Romain Postoyan for more information about the position.

Back to the contents

6.5. PhD: NTNU and CERN, Noway and Switzerland

Contributed by: Morten Hovd, morten.hovd@itk.ntnu.no

PhD position at NTNU, Norway and CERN, Switzerland

NTNU and CERN have an opening for a PhD candidate in the area of optimal control and operation of cooling plants. The candidate will spend 24 months at NTNU in Trondheim, Norway, and 18 months at CERN, and have PhD supervisors at both institutions.

Full details about the position and how to apply can be found at
https://www.jobbnorge.no/en/available-jobs/job/184658/phd-candidate

Back to the contents

6.6. PhD: University of Stavanger, Norway

Contributed by: Arnfinn A. Eielsen, eielsen@ux.uis.no

The University of Stavanger invites applicants for a PhD fellowship in Advanced Dithering Techniques for Power Electronics and Control at the Faculty of Science and Technology, Department of Electrical Engineering and Computer Science. The position is vacant from august 2020.

Dithering is employed in a wide variety of applications to overcome detrimental effects due to non-linearities. It works by purposefully introducing an additional noise or disturbance signal to a non-linear system with low-pass characteristics. A properly designed dither signal can linearize or smooth even severe non-linearities such as those found in switched systems. This smoothing property has been known in control engineering since the 1940's and at that time it was successfully used to reduce friction (mechanical lubrication) in cannon turrets and to quench limit cycles due to non-linear valves in hydroelectric power plants. In more recent years it has been extensively used to achieve "super-resolution" in digital signal processing: e.g. for image processing (most notable the Hubble space telescope), distortion-free re-quantisation between data types, or high-fidelity audio recording.

Although the results of this project will be applicable to a wide range of systems, there will be a focus on reducing the noise and harmonic content from switched mode power converters and drives. The addition of a random variation in the PWM signal has significant scope to dramatically reduce conducted and radiated noise which reduces interference and the required size and cost of filtering components.

The group you will be joining, comprised of A/Prof Arnfinn A Eielsen (University of Stavanger), Prof Andrew J Fleming (The University of Newcastle) and A/Prof John J Leth (Aalborg University), has used dithering techniques to build the highest resolution digital-to-analogue converter known in the literature, to control and suppress the effect of timing glitches (in e.g. digital-to-analogue converters), and to find a new method to maximise the resolution in a novel counting Fabry-Perot laser interferometer (measuring displacement with metrological accuracy and subatomic precision).

The project aim is to develop novel dithering techniques, focusing on: Dither generation and determining closed-loop properties of dithered systems, improving the closed-loop performance of switched and non-linear systems, as well as investigating applications such as power electronics and drives.

The full announcement and instructions for how to apply can be found here:
https://www.jobbnorge.no/en/available-jobs/job/183014/phd-fellowship-in-advanced-dithering-techniques-for-power-electronics-and-control

Back to the contents

6.7. PhD: ETH, Switzerland

Contributed by: Roy Smith, rsmith@control.ee.ethz.ch

PhD position: Modelling, identification and feedback control in uncertain interacting environments

The Automatic Control Laboratory (abbreviated IfA from the German) has an extensive research record in both the theory and application of control technology. Our research spans a broad range including theory, computation, and applications within energy, transportation, and robotic domains. We have three faculty members, (Profs. Dorfler, Lygeros & Smith), 8 post-docs and about 30 PhD students. Our students come from all over the world and the working language is English.

Project background: The Automatic Control Laboratory will be one of the leading institutes in the National Centre of Competence in Research (NCCR) in Dependable Ubiquitous Automation. This NCCR will commence in 2020 and will serve to highlight and foster control and automation activities in Switzerland. The research activities will range from the theoretical foundations of optimization, information processing, and automatic control, through computational tools to enable deployment on a wide range of applications.

Project description: This particular PhD project is focused on modelling and identification of systems from data. The use of these models for control in feedback networks is one of the objectives. The topic is broadly defined as the development of data-driven methods for modelling the behaviour of interconnected systems. Our prior work in this area has involved system identification and model validation, particularly in the context of systems in feedback. The PhD student will be supervised by Prof. Roy Smith. The project will have a strong theoretical component and, depending on the interests and abilities of the candidate, may also range to algorithmic development and experimental evaluation.

Candidates must have (or be about to receive) a Masters degree in an engineering or physical sciences discipline from an internationally recognised university. Your academic background should include feedback control systems and/or data-science. A strong mathematical background is also a benefit. We require excellent communication skills (both written and oral) in English. Prior publications are welcome but not essential. Your Masters degree and any publications should demonstrate an analytic academic approach.

Please note that we exclusively accept applications submitted through our online application portal at https://bit.ly/3dIqzVk

Applications via email or postal services will not be considered. Further information about the Automatic Control Laboratory (IfA) can be found on our website https://control.ee.ethz.ch. The position is currently open.

We hope to make an offer to a candidate before June 2020 and begin the project shortly afterwards. In light of the current coronavirus situation this schedule may have to change. We are continuing to solicit applications and may conduct initial interviews online if travel is not possible in the near future.

Questions regarding the position should be directed to Prof. Roy Smith, email: rsmith@control.ee.ethz.ch (no applications please).

Back to the contents

6.8. PhD: Texas Tech University, USA

Contributed by: Shuxia Tang, shuxia.tang@ttu.edu

Ph.D. in Control of Swarm Robotic Systems

A Ph.D. student positions is available in the Department of Mechanical Engineering at Texas Tech University, USA, anticipated to start in August 2020. Scholarship is available to cover both tuition and living expenses. The candidates will work with Dr. Shu-Xia Tang on the research projects in the fields of swarm robotic systems: drones. More information about the research can be found at https://www.shuxiatang.net/.

Shu-Xia Tang received her Ph.D. in Mechanical Engineering in 2016 from the Department of Mechanical & Aerospace Engineering, University of California, San Diego, USA. She is currently an assistant professor at the Department of Mechanical Engineering, Texas Tech University, USA. She is an IEEE senior member and is an IEEE CSS (Control Systems Society) Technical Committee member on Distributed Parameter Systems. She serves as an associate editor of Journal of Control, Automation and Electrical Systems and as an Editorial Board member of IEEE CSS and ASME DSCC (Dynamic Systems and Control Division). Her main research interests are stability analysis, estimation and control design of distributed parameter systems.

Interested candidates should send a CV detailing academic achievements to Dr. Shu-Xia Tang at shuxia.tang@ttu.edu. All applicants must satisfy Mechanical Engineering graduate program admission requirements (website) with good GPAs, and international applicants must obtain satisfactory TOEFL/IELTS scores.

Dedicated and self-motivated candidates are in particular encouraged to apply:
• M.S. degree in mechanical engineering, electrical engineering, (applied) mathematics, or related areas (required);
• Expertise in MATLAB/SIMULINK or Python, and concrete knowledge in C/C++ (required);
• Hands-on experience in experimental testing or/and hardware design (required);
• Excellent mathematical skills (preferred);
• Excellent oral and written communication skills (preferred);
• Strong skills in control and optimization (preferred).

Back to the contents

6.9. PhD: EPFL, Switzerland

Contributed by: Giancarlo Ferrari Trecate, giancarlo.ferraritrecate@epfl.ch

PhD positions in Automatic Control, Institute of Mechanical Engineering, EPFL, Switzerland

Two PhD positions are available within the Dependable Control and Decision (DECODE) group of EPFL (Switzerland), in the area of distributed and secure control in a data-rich world.

Candidates with a solid methodological background and passionate about research on theory and algorithms are encouraged to apply. The students will work in the collaborative framework of the National Centre of Competence in Research "NCCR Automation", which supports research in automatic control across Switzerland. The PhD projects will focus on the design of control architectures that optimally exploit the increasing availability of sensing, actuation, and communication technologies and that adapt to changing environments while guaranteeing safety and reliability.

Qualifications:
- a Master degree from a recognised University
- a strong background in Systems and Control and/or Machine Learning
- creativity and motivation
- excellent English language skills

Application procedure: prospective PhD students must apply to the doctoral program on Electrical Engineering (EDEE) or on Robotics, Control, and Intelligent Systems (EDRS) before starting their PhD at EPFL, see http://phd.epfl.ch/prospective. Applications can be submitted even before obtaining the master degree according to the following deadlines:
- For EDEE: December 15th, April 15th, and September 15th
- For EDRS: January 15th, April 30th, and September 15th

Fill in the form provided by the doctoral program and indicate your intention to apply to Prof. Giancarlo Ferrari Trecate. Then, email the completed application package to Prof. Ferrari Trecate indicating your interest in the project.

Starting date: very flexible, but not earlier than October 1st 2020. The call will remain open until an ideal candidate will be found.

EPFL is a top technical university, ranked 18th in the world (2020). The successful candidate can expect a gross salary starting at 51100 CHF, together with other benefits, depending on civil status.

Back to the contents

6.10. PhD: Lulea University of Technology, Sweden

Contributed by: George Nikolakopoulos, geonik@ltu.se

Multiple Phd Positions in Aerial Robotics

The Robotics Team at the Department of Computer Science and Electrical and Space Engineering at Luleå University of Technology, Sweden is now looking for 2 PhD Students contributing to our growing activities in Aerial Robotics. The group is heavily involved in a large amount of National and European research grants in this area spanning from UAVs, Space Exploration and Biologically inspired robotics, including the participation in the DARPA Sub-T challenge with the team CoSTAR where we have won the 2nd Challenge of the competition.

The positions will involve dense research activities in the following but not limited areas:
- Field Robotics
- Design, Development and Control of Collaborative aerial and ground agents
- Collaborative formation and scenario accomplishment
- Collaborative Vision for robotics
- Distributed Task execution and overall mission planning
- Deep Learning for Autonomy and Adaptation
- Event Based Vision for aerial vehicles
- Collaborative Mapping and Exploration
- Reinforcement Learning for task replication

The candidates will perform research with substantial experimental components that should be published in peer-reviewed international journals and at major conferences. The position will include supervision of MSc students, Teaching Assistant tasks and support in acquire funding for future research projects from research funding agencies/councils, EU framework program or industry.

For further information please contact Professor George Nikolakopoulos +46 920 491298, geonik@ltu.se

Application Link:
https://www.ltu.se/ltu/Lediga-jobb/Lediga-jobb-1.107417?l=en

Back to the contents

6.11. PhD/Postdoc: Technical University of Chemnitz, Germany

Contributed by: Stefan Streif, stefan.streif@etit.tu-chemnitz.de

The Automatic Control & System Dynamics Lab at the Technical University of Chemnitz, Germany, offers an open position as a Research Associate (PhD student or postdoc; full-time position; competitive salary depending on the level of expertise; initially limited to 5 years and with the possibility of contract extension,

full health insurance included).

The research in the lab focuses on development of control methods in the following areas:
(1) optimal and learning-based control for nonlinear systems,
(2) analysis of uncertain, dynamical systems using set-based methods,
(3) hierarchical optimal and fault-tolerant control,
(4) formal verification of control systems.

Through our research, we aim to contribute toward the development of sustainable technologies. Currently, our applications focus on
(a) energy networks,
(b) coupled agricultural systems and food production,
(c) fuel cell systems and vehicle control in electric transportation systems.

We offer a variety of interdisciplinary projects and large freedom for research ideas and solutions. Well-equipped offices, laboratories and IT facilities provide an ideal working environment. The international office of the university provides assistance with relocation and visa appointments for international applicants.

Theoretical as well as experimental work can be chosen based on individuals' interests. Research results can be tested together with partners from academia and industry. Our team consists of experienced postdocs and young and motivated PhD students. Furthermore, postdocs are given the chance to build up a research group and actively strengthen and shape the above activities by supervision of doctoral students and interaction with collaboration partners. Further information can be found on our website
https://www.tu-chemnitz.de/etit/control/index.php.en
Your profile:
* good background in control and systems theory;
* experiences in teaching are an advantage;
* excellent knowledge of English; basic knowledge of German is an advantage outside of the university, but not strictly required;
* ability and interest to work out your own ideas theoretically and/or to implement the ideas experimentally;
* ability and interest to collaborate in an interdisciplinary team and also to work independently;
* postdocs must have a high-quality publication record; furthermore, project supervision and coordination skills are desirable.

Application process: To apply or to request more information, please contact control@etit.tu-chemnitz.de as soon as possible. Application documents should include CV, publication record, and contact details of references.

Application deadline: 15 May 2020

Back to the contents

6.12. Postdoc: Boston University, USA

Contributed by: Christos Cassandras, cgc@bu.edu

Post doc positions: Division of Systems Engneering, Boston University

The Division of Systems Engineering at Boston University invites applications for Post-Doctoral Associates (equivalently, post-doctoral fellows) for 1 or 2 years to contribute to ongoing research projects in one or more of the following or related areas:

- Multi-agent systems, Cyber-Physical systems with applications of particular interest in sensor networks, robotics, energy, and Smart Cities
- Network systems and economics, cooperative control and optimization, game theory
- Distributed algorithms for decision making
- Machine learning and data science with applications of particular interest in robotics, biology, health care

Candidates are expected to have a proven publication record and the ability to work independently. Preference will be given to candidates interested in joint projects involving two or more research teams led by Division faculty. Candidates who are also interested in contributing to the teaching mission of the Division will receive additional consideration and commensurately higher compensation. The form of teaching contribution is negotiable.

To apply, please submit your CV and a cover letter that includes the names of three references to https://academicjobsonline.org/ajo/jobs/13459.

Prior to applying, you are encouraged (but not required) to contact a Division faculty member who may be a potential supervisor and, if so, please mention this in your cover letter. Applications are welcome now and will be reviewed starting March 20, 2020, continuing until the positions are filled.

Boston University is an equal opportunity employer and all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, national origin, disability status, protected veteran status, or any other characteristic protected by law. Boston University is also a VEVRAA Federal Contractor.

Back to the contents

6.13. Postdoc: University of Padova, Italy

Contributed by: Chiuso Alessandro, chiuso@dei.unipd.it

Call for Applications: Two Post-doc positions @DEI UNIPD

Two post-doc calls have been opened (see details below) in the context the following project funded by the Department of Information Engineering, University of Padova.

Title of the project: Personalized whole brain models for neuroscience: inference and validation

Abstract of the project: Contemporary neuroscience has embraced network science to study the complex and self-organized structure of the human brain, with the promise of addressing key societal issues such

as neural degeneration and treatment of neurological and psychiatric diseases and damages. These objectives will be pursued in this highly interdisciplinary project following a data-driven model based approach: our final goal is to design novel algorithmic solutions for data-driven inference of whole-brain mesoscale dynamical models as well as to develop and validate (or invalidate) models based on both data driven as well as methodological studies. Ideally, these models should provide solid grounds to develop (i) novel individual-level features for predicting cognitive and behavioral deficits originated by brain lesions or neuro-degeneration and (ii) simulation tools for designing personalized treatments such as stimulation.

Team: The post-docs will work in an interdisciplinary team composed of Engineers, Psychologists, Neurologists and Physicists
Salary: Approx. 25Keuro/year gross
Duration: 20 months (can possibly be extended to 32 months)
Opening date: March 3rd, 2020
Closing date:. April 2nd, 2020
Link PostDoc#1: https://www.dei.unipd.it/node/26525
Link PostDoc#2: https://www.dei.unipd.it/node/26510
Contacts:
Prof. Alessandro Chiuso
Department of Information Engineering
University of Padova
chiuso@dei.unipd.it
Prof. Alessandra Bertoldo
Department of Information Engineering
University of Padova
bertoldo@dei.unipd.it

- Postdoc Position # 1

Title: Development and analysis of novel models and methods for effective connectivity in whole-brain network models

Activity: The Post-Doc will develop and refine algorithms for estimation of effective connectivity models from neuroimaging data (fMRI) providing also an in-depth comparison between different classes of methodologies (e.g. DCM-like models and "Granger" causality type models). He/she will also actively collaborate in the validation studies and work in close interaction with the external collaborators (neurologists, neuroscientists, physicists).

Profile: The ideal candidate should have a recent PhD in engineering, applied mathematics/physics, statistics, computer science, and related fields. He/she must have demonstrated experience in complex system modeling and advanced analytic techniques (e.g. multivariate approaches, machine learning, graph theory etc.). Strong analytical/mathematical skills are a requirement. Experience in one or more areas of neuroimaging will be plus. Programming skills (C, C++, Python, Matlab) are not a prerequisite, but a clear advantage. Moreover, the candidate must be highly motivated and creative individual with the ability to work in a dynamic, multi-disciplinary research environment and be willing to interact with both experimental and theoretical neuroscientists.

- Postdoc Position # 2

Title: Analysis and validation of novel models and methods for effective connectivity in whole-brain network models

Activity: The activities will be mainly related to the preprocessing and analysis of neuroimaging data as well as validation, via systematic statistical testing, of effective connectivity models on animal data as well as on stroke patients. In particular, the post-doc will be involved in the design of experiments and conduct human neuroimaging research on normal brain organization and changes in network architecture among patients with stroke, with an emphasis on effective and functional connectivity network mapping. The post-doc will compare the human results with those he/she will obtain working with whole-brain rs-fMRI signals from the animal model.

Profile: The position is open to recent PhDs in applied mathematics/physics, computer science, engineering, statistics and related fields, with demonstrated ability to conduct high impact research. The successful applicant will have expertise in anatomical MRI, dMRI and/or rs-fMRI analysis, familiarity with control theory and system identification, time-series analysis, statistics and graph theoretic and network modeling. Expertise in vivo electrophysiology signals analysis is also desirable. Experience with neuroimaging analysis programs (ANTs, FSL, SPM, FreeSurfer or other relevant programs), and strong knowledge on programming (e.g. good command of scripting, Python and Matlab) is also expected.

Clearly, the successful candidate will be part of a diverse and multidisciplinary group including engineers of different specialties, neuroscientists, physicists, therefore a strong attitude and flexibility in teamworking are required to foster cross-breeding and fertilization among the different disciplines involved in the project.

Back to the contents

6.14. Postdoc: University of Sydney, Australia

Contributed by: Ian Manchester, ian.manchester@sydney.edu.au

Post-doc at University of Sydney in distributed control of multi-robot systems for spreading dynamics

We are seeking outstanding an early-career researcher for a postdoctoral position at the Australian Centre for Field Robotics at the University of Sydney. The project is to develop algorithms for multi-robot motion planning for monitoring and intervention of processes with complex and unstable spreading dynamics such as wildfires. We are seeking candidates with research experience in robot planning, distributed control and optimization, vehicle routing, spreading processes, or a related topic. The position is funded by the US Air Force Office of Scientific Research.

Two year fixed-term position. Salary: $91K –$126K (AUD) base salary plus generous benefits.

For more information and to apply: http://bit.ly/MultiRobotPostdoc

Back to the contents

6.15. Postdoc: INRIA Grenoble, France

Contributed by: Bernard Brogliato, bernard.brogliato@inria.fr

This post-doc position subject is about Linear Complementarity Systems (LCS) analysis, which make an important class of hybrid dynamical systems with applications in circuits with piece-wise linear components, optimal control with state inequality constraints, genetic networks, etc. In particular the design of time-varying stabilizing controllers, both by state and output feedback (keeping in mind that LCS are strongly nonlinear and non-smooth dynamical systems, for which the separation principle does not automatically apply), will be tackled, as well as their robustness with respect to various disturbances and unknown dynamics.

The post-doc will tackle some important issues that are crucial in both control theory and industrial applications, as tracking problems, or observer designs. Theoretical results will be supported by numerical simulations obtained with the INRIA software package SICONOS
http://siconos.gforge.inria.fr/4.1.0/html/index.html

Location: INRIA Grenoble, France. Applicants should hold a PhD (defended between 1st September 2019 and 31st July 2020) in Systems and Control or Applied Mathematics. Starting date: 1st November 2020.

Gross salary: 2650 Euros per month. Applications have to be made on-line on the INRIA web site before 26 April 2020. For more details please contact Dr Bernard Brogliato (bernard.brogliato@inria.fr) or Dr Christophe Prieur (christophe.prieur@gipsa-lab.fr).

Back to the contents

6.16. Postdoc: Norwegian University of Science and Technology, Norway

Contributed by: Damiano Varagnolo, damiano.varagnolo@ntnu.no

Post doc on the broad theme “digital twins” at NTNU in Trondheim, Norway

The Department of Engineering Cybernetics at the Norwegian University of Science and Technology (NTNU) in Trondheim, Norway, has a vacant post-doc position within the field of digital twins for big data cybernetics. The focus of this 2-years project is on approaching theoretical, algorithmic and practical problems relative to combining digital-twin with operation-oriented technologies. More precisely, the objective is to combine methods from automatic control and multivariate data modelling in order to discover systematic structures in the spatial, temporal and property-profile domains, and to convert these structures into quantitative, human-interpretable information.

The role of the sought post-doc is to develop new data-driven and hybrid methods that facilitate using digital twin technologies for the purpose of operating a physical environment. The envisioned post-doc will thus supervise the creation of an opportune digital twin of an opportune built environment endowed with a diverse class of sensors, and exploit the opportunities offered by this environment (and its creation process) to advance the field of big data cybernetics.

For more information, please see the complete call at
https://www.jobbnorge.no/en/available-jobs/job/184925/post-doc-position-within-the-field-of-digital-twins-

for-big-data-cybernetics.

Questions about the position can be directed to Adil Rasheed (adil.rasheed@ntnu.no) or Damiano Varagnolo (damiano.varagnolo@ntnu.no).

Back to the contents

6.17. Postdoc: Université libre de Bruxelles, Belgium

Contributed by: Université libre de Bruxelles, Michel.Kinnaert@ulb.ac.be

A one-year postdoctoral position is open in the Department of Control Engineering and System Analysis of "Université libre de Bruxelles" (ULB) for a researcher holding a PhD degree in control engineering, dynamic system modelling & identification or a related field. Some background in electrochemical applications (like batteries or fuel cells) is a plus.

The successful applicant will work in the framework of a research project supported by the Belgian National Fund for Scientific Research (F.R.S/FNRS) entitled "Optimization and monitoring of environmentally friendly battery packs". This project is carried out jointly with the Nanomaterials, Catalysis, Electrochemistry (NCE) Group of University of Liège (ULiège). It aims at developing safer, long lasting and environmentally friendly lithium ion batteries for use in stationary storage applications. The researcher will be responsible for the mathematical modelling, the identification and the optimal design of a specific kind of lithium-ion batteries. He/she will work in close cooperation with other researchers at ULB and ULiège.

Hiring should take place between June 1 and July 1, 2020. More information on the conditions can be found at https://saas.ulb.ac.be/job-offers/

The applicants should send a single pdf document including the following items:
- a letter of motivation
- a detailed CV
- a copy of their three main publications
- e-mail address and phone number of two reference persons who can provide information regarding their abilities for research
- a summary of their PhD thesis

to Professor Michel KINNAERT by April 12, 2020 (michel.kinnaert@ulb.ac.be).

Any additional information regarding this position can be obtained at the same e-mail address.

Back to the contents

6.18. Postdoc: Lulea University of Technology, Sweden

Contributed by: George Nikolakopoulos, geonik@ltu.se

Multiple Post Doc Positions in Aerial Robotics

The Robotics Team at the Department of Computer Science and Electrical and Space Engineering at Luleå University of Technology, Sweden is expanding and it is now looking for 2 Post Docs contributing to our

growing activities in Aerial Robotics. The group is heavily involved in a large amount of National and European research grants in this area spanning from UAVs, UGVs, Space Exploration and Biologically inspired Robotics, including the participation in the DARPA Sub-T challenge with the team CoSTAR, where we have won the 2nd Challenge of the competition.

The positions will involve dense research activities in the following but not limited areas:
• Field Robotics
• Vision for robotic navigation
• Collaborative formation and mission planning
• Collaborative large scale SLAM
• Event based camera visual servoing
• Distributed NMPC
• Distributed Control
• Distributed SLAM
• Multicamera SLAM

The candidate will perform research with substantial theoretical and experimental components that should be published in peer-reviewed major international journals and at major conferences. The position will include supervision of MSc and PhD students, and to acquire funding for future research projects from research funding agencies/councils, EU framework program or industry.

The candidate will need to represent the group in different occasions, both in Sweden and abroad. Perfect scientific skills with excellence in real life experimentation, former experience in Basic Research funded grants and successful track record in fund raising, as well as perfect communication and management skills are considered as a strong plus. Finally, a former PhD in robotics or automatic control in the related area within publications in the previous research topics is also considered as a plus. The position might also involve teaching, seminars and presentations. As a post-doctoral fellow, you work actively and independent in relation to ongoing research projects. We are looking for a candidate who can contribute to activities at the Robotics team and work in close collaboration with the senior researchers at the research group. The positions are limited to 1+1 years .

For further information please contact Professor George Nikolakopoulos +46 920 491298, geonik@ltu.se

Application Link (Post Doc Fellows in Control Engineering) - https://www.ltu.se/ltu/Lediga-jobb/Lediga-jobb-1.107417?l=en

Back to the contents

6.19. Faculty: University of Oxford, UK

Contributed by: Antonis Papachristodoulou, antonis@eng.ox.ac.uk

Associate Professor of Engineering Science (Control Engineering), University of Oxford

The Department of Engineering Science intends to appoint an Associate Professor in Engineering Science (Control Engineering) from 1st October 2020 or as soon as possible thereafter. The successful candidate will work at the Department of Engineering Science (Central Oxford) and will be offered a Tutorial Fellowship

at Harris Manchester College under arrangements described in the Job Description and Selection Criteria. The combined University and College salary will be on a scale starting at £48,114 per annum plus additional benefits. The appointment will be initially for five years at which point, upon completion of a successful review, the post-holder will be eligible for reappointment to the retiring age.

This appointment will add further strength to the Department's control engineering research. This includes, on the theory end, large-scale, embedded, robust and distributed optimization, polynomial/sum of squares methods and optimal, robust and model predictive control. At the same time, the group covers applications ranging from biology to battery/energy management systems, transportation, aerospace, manufacturing systems and agriculture. Applications from candidates with research interests both within and complementary to the above areas are welcome.

The successful candidate will be expected to engage in original research in the field of control engineering and its applications, to secure research funding and engage in the management of research projects, to supervise research students and to give six hours per week of tutorials during the eight weeks of the undergraduate term. You should have a strong background in control engineering research, including a doctorate in the subject or a cognate discipline, a proven research record of high quality at international level, significant research potential in control engineering, and the ability to attract research funding and develop an independent programme of research. You should have the ability to teach effectively, both at undergraduate and graduate levels, and excellent interpersonal skills for undertaking tutorial teaching.

Further particulars, containing full details of the application procedure and duties, may be obtained from http://www.eng.ox.ac.uk/work-here. The job ref is: DF20HMC/145571. Please quote this in all correspondence.

The closing date for applications is 12.00 noon on Friday 1 May 2020. Interviews will take place on Monday 22 June 2020.

Queries about the post that are not answered in the further particulars should be addressed to Professor Ronald A Roy, Head of Department at academic.recruitment@eng.ox.ac.uk or telephone: +44 (0) 1865 273003.

Applications are particularly welcome from women and black and minority ethnic candidates, who are under-represented in academic posts in Oxford. The University is an Equal Opportunities Employer.

Back to the contents

6.20. Faculty/Research Engineer: Centro de Investigación en Matemáticas, Mexico

Contributed by: Diego Mercado, diego.mercado@cimat.mx

Tenure-track and two research engineer positions at CIMAT-Zacatecas, Mexico

The Centro de Investigación en Matemáticas (Center for Research in Mathematics - CIMAT) invites applications for a tenure-track and two research engineer positions. CIMAT is a federal research center in Pure and Applied Mathematics, Probability, Statistics, and Computer Science, and depends on the National Council of Science and Technology of Mexico (CONACYT). CIMAT has a research campus at the UNESCO world

heritage city of Zacatecas, in which a young team performs research in human-computer interaction (HCI), robotics and software engineering, with a good incidence in the state. The main economic activity in Zacatecas is based on Mining, Agriculture, Tourism and Sustainable Energy, with a rich cultural activity. A strategic objective of CIMAT and its computer science department, is to consolidate both the Zacatecas campus and the robotics research team, and hence to expand its influence in the state of Zacatecas. To reach this goal CIMAT is hiring a group leader research scientist and two research engineers with outstanding research and technical skills.

1) Tenure track position in robotics at CIMAT, campus Zacatecas.

The position is aimed to a researcher with a PhD degree working on robotics with a strong component in mathematics and algorithms, particularly in motion planning, control theory or machine learning. It is also suitable that the candidate has experience and interest in human-robot and human-computer interaction. The opportunity corresponds to a tenure track position, which requires performing cutting edge research and being the head of the research activities in the campus of CIMAT at Zacatecas. The candidate should have managing abilities for leading the campus. This position requires interaction with the industry in the region and the government of the state of Zacatecas. He/She should maintain a close collaboration with researchers working in the campus of CIMAT at Guanajuato.

It is expected that the candidate has proven experience in robotics research with publications in prestigious journals and conferences in the area e.g. IEEE TRO, IJRR, AURO, RAS, ICRA, WAFR, IROS, etc.. It is also expected that the candidate belongs to the national system of researchers in Mexico (SNI), rank 1 or superior, or having the merits to obtain the award within a year from the hiring date. The candidate should also be capable of advising graduate students working on topics related to robotics research, and teaching courses in the area.

Applicants should send the following information in pdf to coordinacion_cc@cimat.mx
1. Cover letter.
2. Curriculum vitae.
3. A statement describing the planned research. Include a proposed starting date
4.Two letters of recommendation which should be sent directly to coordinacion_cc@cimat.mx

Applications from women candidates are highly welcomed. Applications will be accepted and reviewed until the available position is given. The first selection round will start on July 1st 2020.

2) Research engineer position in robotics at the Campus Zacatecas of CIMAT

The candidate must have a PhD degree (or being close to obtain it) in robotics, human-computer interaction or related areas. Experience in programming languages (C, C++, python, etc.), operating systems and networks is required, but also knowledge about hardware and robots is suitable. The candidate will be in charge of the campus laboratories (e.g. robotics, HCI, etc.) and will give the required maintenance to the robots, their specialized software (e.g. ROS) and the labs' network. The candidate will also be in charge of maintaining operational equipment to perform research in human-robot and human-computer interaction, for instance, Virtual Reality equipment and high performance computers. It is also very important for the candidate to be able to work on technological projects with the industry and implement solutions to com-

plex high tech problems. The candidate should also be capable of teaching courses in the area.

Applicants should send the following information in pdf to coordinacion_cc@cimat.mx
1.Cover letter.
2.Curriculum vitae.
3.Two letters of recommendation which should be sent directly to coordinacion_cc@cimat.mx

Applications from women candidates are highly welcomed. Applications will be accepted and reviewed until the available position is given. The first selection round will start on July 1st 2020.

3) Research engineer position in robotics at the Campus Zacatecas of CIMAT

The candidate must have an engineering degree in mechatronics with a master degree in a related area and experience working with hardware, particularly with drones and robots in general, and their corresponding hardware and software components. Experience with power supplies, servomotors, sensors, design and manufacturing of mechanical devices (3D printers, CAD and CAM) is desirable. The candidate will be in charge of the hardware in the different laboratories of the campus, for instance, equipping the robots with the required mechanical and electronic devices, or giving maintenance to the human-computer interaction equipment, etc. He/She must also be able to work on technological projects with the industry and implement solutions to complex high tech problems.

Applicants should send the following information in pdf to coordinacion_cc@cimat.mx:
1.Cover letter.
2.Curriculum vitae.
3.Two letters of recommendation which should be sent directly to coordinacion_cc@cimat.mx

Applications from women candidates are highly welcomed. Applications will be accepted and reviewed until the available position is given. The first selection round will start on July 1st 2020.

For up-to-date information, please consult:
https://www.cimat.mx/en/calls-research-position.

Back to the contents

6.21. Software Developer: Perceptive Engineering Limited, UK

Contributed by: Oskar Vivero, ovivero@perceptiveapc.com

We are currently looking for a Software Developer with good experience in Java and C programming. The candidate will be involved in the development of modelling and statistical analysis capability for the control, optimisation, and monitoring of production processes as well as the development of the user interface of the PerceptiveAPC Software Suite. Together with developing new functionality, the candidate will support the existing code base and will be involved in interpreting requirements from internal and external users.

In addition to the skills in C and Java, experience in SQL, Python, Git, Process Control, IOT and Industry 4.0 technologies would be advantageous.

Role Overview: The key responsibilities of the role include (but are not limited to)
- Develop new functionality for the PerceptiveAPC Software Suite
- Support the existing code base
- Interpret requirements from internal and external users for inclusion in the software suite
- Write code in line with quality requirements
- Work with a cross-functional team to ensure PerceptiveAPC meets the standards and requirements of our end users

Essential Skills Required:
- Java and C
- Excellent attention to detail
- Excellent communication skills
- Ability to work within a team

Desirable:
- An undergraduate degree in an engineering or software discipline
- Postgraduate degree or experience in process control, applied mathematics, statistics or informatics
- Experience in SQL, Python, Git, IOT or Industry 4.0

For more information, please visit
https://www.perceptiveapc.com/about_us/careers/

Back to the contents

6.22. Researcher: University of Stuttgart, Germany
Contributed by: Carsten Scherer, carsten.scherer@mathematik.uni-stuttgart.de

Independent Junior Research Group Leaders in Data-Integrated Simulation Science (f/m/d), University of Stuttgart, Germany

The Cluster of Excellence EXC 2075 "Data-Integrated Simulation Science (SimTech)" at the University of Stuttgart invites applications for several positions of Independent Junior Research Group Leaders in Data-Integrated Simulation Science (f/m/d). The detailed announcement is available at
https://www.simtech.uni-stuttgart.de/detail/news/Independent-Junior-Research-Group-Leaders-in-Data-Integrated-Simulation-Science-f-m-d/

The Cluster of Excellence EXC 2075 comprises the project network "Data-integrated control systems design with guarantees"
https://www.simtech.uni-stuttgart.de/en/research/networks/. The overarching goal of the research in this project network is to develop novel methodologies that aim at exploiting the benefit of data and learning structures on top of classical first-principles models and that are capable of providing rigorous guarantees for the overall system behavior.

We are seeking highly motivated young scientists with an outstanding early-career track- record (typically two years after obtaining a doctorate) and substantial international research experience in the field of Sys-

tems and Control and related disciplines, with an emphasis on data-integration and techniques in machine learning and artificial intelligence. Successful candidates have received excellent academic degrees in engineering, natural sciences, computer science, mathematics or related areas.

Please submit your application before 17 April 2020 by e-mail to jobs@simtech.uni-stuttgart.de with a single PDF attachment comprising cover and motivation letter, academic CV, list of publications, a 3-page description of past and future research activities, and degree certificates and transcripts of records from Bachelor/Master/PhD degrees. Please also attach a summary of your research profile in the template that is available under the application form: https://bit.ly/3bCOSlV

Applications and two reference letters should be addressed to
Prof. Dr. Thomas Ertl
Stuttgart Center for Simulation Science
University of Stuttgart
Pfaffenwaldring 5a
70569 Stuttgart
thomas.ertl@vis.uni-stuttgart.de
https://www.simtech.uni-stuttgart.de/en/detail/employee/Ertl-00004/

Back to the contents