

E-LETTER ON SYSTEMS, CONTROL, & SIGNAL PROCESSING ISSUE 378, FEBRUARY 2020

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Welcome to Issue 378 of the CSS E-letter available [here](#).

- To submit new articles, visit [article submissions](#) on the E-Letter website.
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- 6.2 PhD: Louisiana State University, USA
- 6.3 PhD: University of Louisville, USA
- 6.4 PhD: Univ. of South Florida and Embry-Riddle Aeronautical Univ., USA
- 6.5 PhD: University of Lille, France
- 6.6 PhD: Université Libre de Bruxelles, Belgium
- 6.7 PhD: Texas Tech University, USA
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- 6.9 PhD: Eindhoven University of Technology, USA
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- 6.11 PhD: ETH Zurich, Switzerland
- 6.12 PhD: Lorraine University, France
- 6.13 PhD: Tallinn University of Technology, Estonia
- 6.14 PhD: University of Louisiana at Lafayette, USA
- 6.15 PhD: Lulea University of Technology, Sweden
- 6.16 PhD/Postdoc: Leibniz University Hannover, Germany
- 6.17 PhD/Postdoc/Engineer: University of Liège, Belgium
- 6.18 Postdoc: Boston University, USA

- 6.19 Postdoc: Université libre de Bruxelles, Belgium
- 6.20 Postdoc: Nazarbayev University, Kazakhstan
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- 6.22 Postdoc: KTH, Sweden
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- 6.24 Postdoc: University of Cambridge and University of Southampton, UK
- 6.25 Postdoc: University of Groningen, The Netherlands
- 6.26 Postdoc: Lulea University of Technology, Sweden
- 6.27 Postdoc: Beihang University, China
- 6.28 Faculty: University of Washington, USA
- 6.29 Faculty: Norwegian University of Science and technology, Norway
- 6.30 Faculty: NYU Abu Dhabi, United Arab Emirates
- 6.31 Research Scientist/Engineer: Intelligent Fusion Technology, USA
- 6.32 Engineer: LG Electronics, USA
- 6.33 Internship: GE Research, USA

1 IEEE CSS Headlines

1.1. CSS President's Message

Contributed by: Anuradha Annaswamy, CSS President aanna@mit.edu

Dear all,

It is my pleasure to greet you all as the incoming President of the IEEE Control Systems Society, as the clock turns twelve, and we usher in the year 2020, and wish you a very happy new year and a doubly delightful new decade! I wish you the very best success in your research, hope that it is robust, optimal, and resilient and you successfully adapt to all events that come your way!

We hope to see you all in our two conferences, CCTA 2020 in Montreal in August, and CDC 2020 in Jeju Island, Korea, and at the ACC 2020 in Denver, Colorado!

Please reach out to us if you have any questions or comments. I look forward to working with you all and make the IEEE CSS a vibrant home for all of your research activities!

Best wishes,
Anu Annaswamy

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1.2. Become a CSS Member

Contributed by: Ahmad Taha, ahmad.taha@utsa.edu

Become a CSS Member by visiting the following link <https://bit.ly/2ZBWCCs>.

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1.3. 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>

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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). Miedzydroje, 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>

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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.

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1.6. IEEE Transactions on Automatic Control

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

IEEE Transactions on Automatic Control
Volume 65 (2020), Issue 1 (January)

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- An Explicit Reference Governor for the Intersection of Concave Constraints Mehdi Hosseinzadeh, Emanuele Garone, p. 1
- Mean Field Games with Parametrized Followers Alain Bensoussan, Thomas Cass, Man Ho M. Chau, Phillip, Sheung Chi Yam, p. 12
- Distributed Kalman Filters with State Equality Constraints: Time-based and Event-triggered Communications Xingkang He, Chen Hu, Yiguang Hong, Ling Shi, Haitao Fang, p. 28
- A Partial-State Feedback Model Reference Adaptive Control Scheme Ge Song, Gang Tao, p. 44
- Regulation of inhomogeneous drilling model with a P-I controller Alexandre Terrand-Jeanne, Vincent Andrieu, Mélaz Tayakout-Fayolle, Valérie Dos Santos Martins, p. 58

- Markov Chains with Maximum Return Time Entropy for Robotic Surveillance Xiaoming Duan, Mishel George, Francesco Bullo, p. 72
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1.7. IEEE Control Systems Letters

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

IEEE Control Systems Letters
Volume 4 (2020), Issue 1 (January)

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

Papers:

- Secure Navigation of Robots in Adversarial Environments, G. Bianchin, Y.-C. Liu, and F. Pasqualetti, p. 1
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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

Volume 6, Number 4, December 2019

The table of contents of this IEEE TCNS issue, with links to paper abstracts, is available on <http://sites.bu.edu/tcns/december-2019/>

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- Controllability and Observability of Boolean Control Networks via Sampled-Data Control Q. Zhu, Y. Liu, J. Lu, and J. Cao p. 1291
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- Robust Power System State Estimation From Rank-One Measurements G. Wang, H. Zhu, G. B. Giannakis, and J. Sun p. 1391
- Top-Down Synthesis of Multiagent Formation Control: An Eigenstructure Assignment Based Approach T. Motoyama and K. Cai p. 1404
- Online Leader Selection for Collective Tracking and Formation Control: The Second-Order Case A. Franchi, P. R. Giordano, and G. Michieletto p. 1415
- Distributed Robust Global Containment Control of Second-Order Multiagent Systems With Input Saturation J. Fu, Y. Wan, G. Wen, and T. Huang p. 1426
- POSE.3C: Prediction-Based Opportunistic Sensing Using Distributed Classification, Clustering, and Control in Heterogeneous Sensor Networks J. Z. Hare, S. Gupta, and T. A. Wettergren p. 1438
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1.9. 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.

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2 Miscellaneous

2.1. European PhD Award on Control for Complex Systems

Contributed by: Luca Greco, luca.greco@centralesupelec.fr

2019 European PhD Award on Control for Complex and Heterogeneous Systems

As every year, we would like to encourage young researchers that have recently obtained their PhD degree to participate in the process for the selection of the best PhD thesis defended in a European University in the field of Control for Complex and Heterogeneous Systems.

The aim is to encourage high-quality work amongst young researchers in their first research period. The prize consists of a certificate and a cash award of 1000€. It will be delivered during the ECC'20 Congress. Deadline for application: *29th February 2020* To be eligible for the award, the thesis must be in English and have been defended in Europe between 15/07/2018 and 14/07/2019

Former recipients can be found on the webpage:
<http://www.eeci-institute.eu/index.php?p=PhD-Award>

To apply, please consult the award webpage:
<http://www.eeci-institute.eu/PhD-Award/>

Please forward this message also to whom it may concern in your Department or to your colleagues.

Best regards,
Denis Efimov,
Luca Greco

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2.2. Field Artificial Intelligence Project

Contributed by: George Nikolakopoulos, geonik@ltu.se

Dear colleagues,

this is to notify you about the project proposal: Field Artificial Intelligence (FAI) - <https://www.fieldai.eu/> that we are developing with an aim to ensure and boost a European strategy autonomy in the field of AI and by that establishing a dynamic and strong network of excellence, with the power to underpinning most of the future professional and private activities in the field, while enabling a direct and measurable huge socio-economical impact.

Field AI is a massive inclusive action in the European arena of AI, focusing in reinforcing and building the best of Europe's assets in AI, with a specific focus in the world class research community in order to place Europe and the corresponding AI activities in the forefront. FAI will focus in all the following aspects of AI to produce the future AI ecosystem and a radical change in the way we think and use of AI.

- Advances in foundations of AI (e.g.: learning and reasoning approaches) and approaches for trusted AI solutions (including explainable AI, unbiased AI, safety, reliability, verifiability etc.)
- Developing the next generation of intelligent robots
- Advanced perception or interaction with humans (for human-centered AI)
- AI at the edge and hardware for AI environments.

Are you interested to contribute in these areas through FAI and become an affiliated partner? Please join the movement here: <https://www.fieldai.eu/endorsements>

Contact:

George Nikolakopoulos geonik@ltu.se

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2.3. International Graduate School on Control

Contributed by: Janet Lucotte, admin-eeci@centralesupelec.fr

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

The early Registration and Grant application deadline for M10 to M25 of the 2020 International Graduate School on Control <http://www.eeci-igsc.eu/> is approaching: 8 March 2020.

It is still possible to register to the first modules M02 to M09.

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3 Books

3.1. Neural Approximations for Optimal Control and Decision

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

Neural Approximations for Optimal Control and Decision by Riccardo Zoppoli, Marcello Sanguineti, Giorgio Gnecco, and Thomas Parisini

ISBN: 978-3-030-29691-9

January 2020, Springer

Hardcover, 517 pages, \$219.99/ 169,99€

<https://www.springer.com/gb/book/9783030296919>

Neural Approximations for Optimal Control and Decision provides a comprehensive methodology for the approximate solution of functional optimization problems using neural networks and other nonlinear approximators where the use of traditional optimal control tools is prohibited by complicating factors like non-Gaussian noise, strong nonlinearities, large dimension of state and control vectors, etc. Features of the text include:

- a general functional optimization framework;
- thorough illustration of recent theoretical insights into the approximate solutions of complex functional optimization problems;
- comparison of classical and neural-network based methods of approximate solution;
- bounds to the errors of approximate solutions;
- solution algorithms for optimal control and decision in deterministic or stochastic environments with perfect or imperfect state measurements over a finite or infinite time horizon and with one decision maker or several;
- applications of current interest: routing in communications networks, traffic control, water resource management, etc.; and
- numerous, numerically detailed examples.

The authors' diverse backgrounds in systems and control theory, approximation theory, machine learning, and operations research lend the book a range of expertise and subject matter appealing to academics and graduate students in any of those disciplines together with computer science and other areas of engineering.

Contents

1. The Basic Infinite-Dimensional or Functional Optimization Problem
2. From Functional Optimization to Nonlinear Programming by the Extended Ritz Method
3. Some Families of FSP Functions and Their Properties
4. Design of Mathematical Models by Learning From Data and FSP Functions
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7. Stochastic Optimal Control with Perfect State Information over a Finite Horizon
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9. Team Optimal Control Problems
10. Optimal Control Problems over an Infinite Horizon

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3.2. Path Planning and Control of Cooperative Mobile Robots

Contributed by: Cristian Mahulea, cmahulea@unizar.es

Title: Path Planning and Control of Cooperative Mobile Robots Using Discrete Event Models

Authors: Cristian Mahulea, Marius Kloetzer, Ramon Gonzalez

ISBN: 978-1-119-48632-9, January 2020, Wiley-IEEE Press, 240 Pages

More information: <https://bit.ly/2MYphKe>

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3.3. Deep Reinforcement Learning with Guaranteed Performance

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

Deep Reinforcement Learning with Guaranteed Performance by Yinyan Zhang, Shuai Li, and Xuefeng Zhou

ISBN: 978-3-030-33383-6

January 2020, Springer

Hardcover, 225 pages, \$159.99, €135,19

<https://www.springer.com/gb/book/9783030333836>

This book discusses methods and algorithms for the near-optimal adaptive control of nonlinear systems, including the corresponding theoretical analysis and simulative examples, and presents two innovative methods for the redundancy resolution of redundant manipulators with consideration of parameter uncertainty and periodic disturbances.

It also reports on a series of systematic investigations on a near-optimal adaptive control method based on the Taylor expansion, neural networks, estimator design approaches, and the idea of sliding mode control, focusing on the tracking control problem of nonlinear systems under different scenarios. The book culminates with a presentation of two new redundancy resolution methods; one addresses adaptive kinematic control of redundant manipulators, and the other centers on the effect of periodic input disturbance on redundancy resolution.

Each self-contained chapter is clearly written, making the book accessible to graduate students as well as academic and industrial researchers in the fields of adaptive and optimal control, robotics, and dynamic neural networks.

Contents

1. A Survey of Near-Optimal Control of Nonlinear Systems
2. Near-Optimal Control with Input Saturation
3. Adaptive Near-Optimal Control with Full-State Feedback
4. Adaptive Near-Optimal Control Using Sliding Mode
5. Model-Free Adaptive Near-Optimal Tracking Control
6. Adaptive Kinematic Control of Redundant Manipulators
7. Redundancy Resolution with Periodic Input Disturbance

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4 Journals

4.1. Systems & Control Letters

Contributed by: Lusia Veksler, lveksler@ucsd.edu

Systems & Control Letters

January 2020

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4.2. 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-Compindex, OCLC, SCImago, Summon by Serial Solutions

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Contributed by: Jessica Bristow, JBristow@theiet.org

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4.4. Automatica

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

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4.5. Control Engineering Practice

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

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4.6. Mechatronics

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

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4.7. Journal of Process Control

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

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4.8. European Journal of Control

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

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4.9. Journal of the Franklin Institute

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Journal of the Franklin Institute

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4.10. International Journal of Control

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

International Journal of Control

Volume 93, Issue 2, 2020

<http://www.tandfonline.com/toc/tcon20/current>

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4.11. CFP: IET Control Theory & Applications Special Issue

Contributed by: Anh-Tu Nguyen, nguyen.trananhtu@gmail.com

Call for Papers: IET Control Theory & Applications

Special Issue on “Emerging Trends in LPV-based Control of Intelligent Automotive Systems”

Linear-parameter-varying (LPV) paradigm has been demonstrated as an effective tool for modeling, control and observation in a variety of engineering applications, especially nonlinear automotive systems. One of the major challenges of LPV methods consists in deriving less conservative optimization-based solutions with affordable computational cost for complex high-dimensional nonlinear systems. To cope with more and more stringent requirements on vehicle safety, fuel economy and power, various new techniques are being introduced to automotive systems. Consequently, making vehicle systems more intelligent with more sensor/actuator dynamics involved. However, this leads to a huge challenge to existing LPV methods since they can no longer handle effectively the intelligent automotive systems due to increasing complexity. Therefore, it is time to develop new and effective LPV-based techniques for intelligent automotive systems (IASs) to accommodate the sharp increase in their level of complexity. This Special Issue is focused on presenting new techniques on LPV-based design methods for complex IASs. It is a platform to discuss application-oriented LPV-based control theories and theory applications on IASs. Original contributions with significant results on experimental validations are necessary for each submission.

Potential topics include, but are not limited to:

- Vehicle modeling and parameter Identification
- LPV models of IASs
- Gain-scheduling controller design of IASs
- Un-measurable scheduling variables

- Precision of scheduling variables
- Sensor placement and reduction
- Human-machine interaction for intelligent vehicles
- LPV-based control of intelligent automotive suspension systems
- LPV-based control of interconnected vehicles
- LPV-based control of autonomous vehicles
- LPV-based control of powertrain systems
- LPV-based control of vehicle emissions

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Proposed publication schedule:

- Submission Deadline: March 10th 2020

- Publication Date: December 2020

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4.12. CFP: Asian Journal of Control Special Issue

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

CFP: Asian Journal of Control

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

The topic of the special issue belongs to multi-objective control design based on quasi Linear Parameter Varying (qLPV) models and Linear Matrix Inequality (LMI) based optimization. The special issue focuses on advanced theories and design solutions based on Tensor Product (TP) model transformation.

Recent research shows that by varying the antecedents and consequents in Takagi-Sugeno fuzzy models as well as in other polytopic models, one can strongly influence how the further control design steps will proceed and also how good the resulting control performance will be. The TP model transformation is capable of deriving alternative antecedents and consequents, and of varying and combining the inputs of multiple

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

Guest Editors:

- Prof. Péter Baranyi Budapest University of Technology and Economics, Hungary prof.peter.baranyi@gmail.com
- Prof. Yeung Yam Chinese University of Hong Kong, Hong Kong SAR, China yyam@mae.cuhk.edu.hk
- Dr. Amit Surana United Technologies Research Center, USA SuranaA@utrc.utc.com

Important Dates:

- February 29, 2020 Deadline for Submissions
- May 31, 2020 Completion of First Review
- July 31, 2020 Completion of Final Review
- October 31, 2020 Receipt of Final Manuscript
- March, 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

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Important Dates:

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

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5 Conferences and Workshops

5.1. Data Driven Control and Learning Systems Conference, China

Contributed by: Dong Shen, dshen@ieee.org

2020 IEEE 9th Data Driven Control and Learning Systems Conference

June 19-21, 2020, Liuzhou, Guangxi Province, China

The 2020 IEEE 9th Data Driven Control and Learning Systems Conference (DDCLS'20) will be held in Liuzhou, Guangxi Province, China, on June 19-21, 2020. Liuzhou (Liuchow) is a prefecture-level city in north-central Guangxi Zhuang Autonomous Region, in southern China. Although it is the largest industrial city in Guangxi, it has a reputation of clean land and beautiful scenery. Liuzhou has a history of more than 2,100 years and was founded in 111 B.C.. It has many tourist attractions, and the most famous sites include Sparrow Mountain Park, Dragon Pool Park, Dule Park, Yufeng Peak (Fish Peak), White Lotus Cave (actually a rotolithic human site), and the minority villages in Rongshui, Rong'an and Sanjiang.

Data Driven Control and Learning Systems Conference (DDCLS) is an annual conference organized by Technical Committee on Data Driven Control, Learning and Optimization, Chinese Association of Automation. In the last three DDCLS conferences, DDCLS'17 (Chongqing) and DDCLS'18 (Enshi), DDCLS'19 (Dali), a lot of renowned scholars from different countries were invited to deliver keynote addresses, for example, Prof. M. M. Polycarpou from University of Cyprus, Prof. Cesare Alippi from Politecnico di Milano, and Prof. Gang-Hong Yang from Northeastern University, Prof. Steven X. Ding from University of Duisburg-Essen, Prof. Håkan Hjalmarsson from KTH Royal Institute of Technology, Prof. Feng Qian from East China University of Science and Technology, Prof. Marco C. Campi from University of Brescia, Prof. Zhiqiang Gao from Cleveland State University, and Prof. Weihua Gui from Central South University.

The objectives of DDCLS'20 are to provide high quality research and professional interactions on the advancement of theory, technology and practical applications in the fields of data-driven control, learning, automation and optimization. DDCLS'20 includes plenary speeches by world-leading experts, regular sessions, invited sessions, poster sessions, workshops and panel discussion. The scientists, engineers and practitioners in the data driven science and engineering related fields are cordially invited to participate in a wealth of the presentations, discussion and social activities, and to enjoy the unique cultural and scenic experience that Liuzhou offers for its beauty, history and hospitality.

The DDCLS'20 covers both theory and applications in all the areas of data driven control and learning systems. The topics of interest include, but are not limited to:

- Data-driven control theory, approaches and applications
- Model-free adaptive control theory and applications
- Active disturbance rejection control and applications
- Data-driven fault diagnosis, health maintenance and performance evaluation
- Iterative learning identification, iterative learning control and repetitive control
- Data-driven modeling, optimization, scheduling, decision and simulation
- Statistical learning, machine learning, data mining and practical applications in automation field
- Neural networks, fuzzy systems control methods in data driven manner
- Reinforcement learning control

- Robustness on data-driven control
- Complementary controller design and relationships between data-driven and model-based control methods
- Applications of data-driven methods to the industrial processes
- Data-driven modeling, control and optimization for traffic systems
- Data-driven control for practical complex processes
- Technology of complex big-data systems and applications
- Big data in industrial processes and its applications in modeling and control

Full papers or extended abstract describing original work and special/invited session proposals should be submitted by January 31, 2020 through the portal <http://cms.amss.ac.cn/>. Upon acceptance, authors will be required to register and present their papers at DDCLS'20. The Extended Abstract of a paper should be reviewed, and also presented during the conference, but not be included in the IEEE Xplore, nor indexed by other database. For further information, please refer to <http://www.gxust.edu.cn/gxkjdxhywzywz/> and email chkyin@bjtu.edu.cn.

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5.2. Mathematical Problems in Engineering and 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)

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5.3. Conference on Unmanned Aircraft Systems, Greece

Contributed by: Youmin Zhang, Youmin.Zhang@concordia.ca

Last Call for Papers: 2020 International Conference on Unmanned Aircraft Systems (ICUAS'20), Athens, Greece, June 9-12, 2020 (<http://www.uasconferences.com>)

On behalf of the Organizing Committee and the ICUAS Association, it is our pleasure to invite you to contribute to and participate in the 2020 International Conference on Unmanned Aircraft Systems, ICUAS'20, which will be held for the first time outside the U.S., in Athens, Greece, on June 9-12, 2020, at the luxurious Divani Caravel Hotel (<http://divanicaravelhotel.com>). This annual conference has grown tremendously; it has earned the respect of the professional community and it is constantly co-sponsored technically by the IEEE CSS and RAS and the Mediterranean Control Association. The conference is fully sponsored by the ICUAS Association. Following the usual tradition, the conference will be preceded by one day of tutorials and workshops, followed by three full-days of technical sessions. In 2020, we will introduce 'poster papers' again, which will go under the same thorough review process, but will report on new ideas with only preliminary results. Keynote lectures, panel discussions and a social agenda will complement and complete the four-day event.

Conference topics include (but not limited to): Airspace Control; Integration; Sense-Detect-and-Avoid Systems; Airspace Management; Interoperability; Security; Airworthiness; Levels of Safety; Sensor Fusion; Autonomy; Manned/Unmanned Aviation; Smart Sensors; Biologically Inspired UAS; Micro- and Mini- UAS; Standardization; Certification; Networked UAS; Technology Challenges; Control Architectures; Payloads; Training; Energy Efficient UAS; Path Planning and Navigation; UAS Applications; Environmental Issues; Regulations; UAS Communications; Fail-Safe Systems; Reliability of UAS; UAS Testbeds; Frequency Management; Risk Analysis; UAS Transportation Management (UTM); Policy/Regulation/Law Aspects. The major themes of ICUAS '20 are: integration of manned-unmanned aviation into the national airspace, legal, ethical and privacy issues, regulations, benefits of unmanned aviation to society, UAS/RPAS design for safety, reliability and resilience, and technology standards.

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

Important Dates (Please check the latest information at <http://www.uasconferences.com>)

- February 14, 2020: Full Papers/ Invited Papers/Tutorial Proposals Due
- April 15, 2020: Acceptance/Rejection Notification
- May 8, 2020: Upload Final, Camera Ready Papers
- April 15 - May 8, 2020: Early Registration

Paper submission: All papers must be submitted and uploaded electronically. Go to <https://controls.papercept.net>. Click on the link "Submit a Contribution to ICUAS'20" and follow the steps. The paper format must follow IEEE paper submission rules, two-column format using 10 point fonts, Times New Roman. The maximum number of pages per submitted paper is 10. For accepted papers, up to two additional pages will be permitted for a charge of \$100 per additional page. Illustrations and references are included in the page count. Invited and Special Sessions: Proposals for invited/special sessions must be submitted/uploaded electronically.

A Summary Statement describing the motivation and relevance of the proposed session, invited paper titles and author names must be uploaded electronically by February 14, 2020. In addition, authors must submit FULL versions of invited papers electronically, through <https://controls.papercept.net>. Each paper must be marked as 'Invited Session Paper'. Workshops/Tutorials: Proposals for workshops/tutorials should contain title, the list of speakers, and extended summaries (2000 words) of their presentations. Proposals must be sent by e-mail to the Tutorial/ Workshop Chair by February 14, 2020.

Paper Review Process: All submitted papers will undergo a peer review process coordinated by the Program Chairs, Advisory Committee Members, IPC members and qualified reviewers. Authors will be notified of results at the latest by April 15, 2020. Accepted papers must be uploaded electronically no later than May 8, 2020. Authors are encouraged to accompany their presentations with multimedia material, which will be included in the Conference Digital Proceedings. Conference Proceedings will be acquired by IEEE and they appear in IEEE Xplore.

Welcome and look forward to receiving your contributions and attendance to the ICUAS'20! For detailed information please see www.uasconferences.com.

ICUAS Association Liaison Chair

Kimon P. Valavanis, Univ. of Denver, kimon.valavanis@du.edu

Honorary Chairs

Didier Theilliol, University of Lorraine

Fulvia Quagliotti, Politecnico di Torino

General Chairs

Youmin Zhang, Concordia University

Anthony Tzes, NYU Abu Dhabi

Program Chairs

Antonio Franchi, CNRS-LAAS

Kostas Alexis, University of Nevada, Reno

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5.4. Workshop on Security in Machine Learning & Optimization, USA

Contributed by: Quanyan Zhu, quanyan.zhu@nyu.edu

Workshop on Security in Machine Learning & Optimization

Georgetown University, Washington DC

March 11, 2020

<http://disc.georgetown.domains/workshop/>

Recent years have witnessed a growing number of adversarial attacks and malicious behaviors aimed at systems built with machine learning and optimization algorithms. There is a need for new theories and models to provide a fundamental understanding of the vulnerabilities of these algorithms and develop methods to safeguard the system from attacks. This workshop will bring together experts from the cybersecurity, machine learning, and optimization communities to highlight recent works that contribute to addressing these challenges. Our agenda will feature invited talks and contributed poster presentations. It will provide a platform for researchers to discuss and propose new models, algorithms, and ideas for future cross-community collaborations.

Registration: Workshop registration is free, but required. Please register using this Google form. You can indicate your interest in poster presentations using the link.

Venue: Georgetown University, Washington DC. The workshop will be held at the Healy Family Student Center (HFSC) in the campus of Georgetown University in Washington DC.

Organizers:

- Prof. Suhas Diggavi, University of California at Los Angeles (UCLA)
- Prof. Nitin Vaidya, Georgetown University
- Prof. Quanyan Zhu, New York University (NYU)

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5.5. Conference on Methods and Models in Automation and Robotics, Poland

Contributed by: Pawel Dworak, pawel.dworak@zut.edu.pl

25th International Conference on Methods and Models in Automation and Robotics

24-27 August 2020

Amber Baltic Hotel, Miedzyzdroje, Poland

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

The Conference will be a good opportunity for highlighting the new results and directions of Automatic Control theory, technology and applications. As such, it mainly will concentrate on the following key points:

- emphasis on invited lectures including plenaries,
- industry participation promotion,

– attract young people to study and work in the field.

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

Topics of interest include, but are not limited to:

- Identification, modelling and simulation
- Signal processing
- Control and systems theory
- Robotics
- Intelligent systems and methods
- Control systems

The proceedings of the conference will be submitted for review and approval for inclusion in the IEEE Xplore® Digital Library and will be submitted for inclusion in the Conference Proceedings Citation Index - Science (ISI Web of Science).

Key Dates

March 2, 2020 - Paper submission

May 18, 2020 - Notification of acceptance

June 22, 2020 - Registration

June 22, 2020 - Camera-ready paper submission

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

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5.6. International Conference on Control & Automation, Japan

Contributed by: Guoqiang Hu, gqhu@ntu.edu.sg

The 16th IEEE International Conference on Control & Automation (IEEE ICCA 2020)

July 6-9, 2020, Sapporo, Hokkaido, Japan

Call for Papers: The 16th IEEE International Conference on Control & Automation (IEEE ICCA 2020) will be held during July 6-9, 2020, in Sapporo, Hokkaido, Japan. The conference is organized by IEEE Control Systems Chapter, Singapore. It is technically sponsored by IEEE Control Systems Society. It aims to create a forum for scientists and practising engineers throughout the world to present the latest research findings and ideas in the areas of control and automation, and possible contributions toward sustainable development and environment preservation. The conference is featured with Best Paper Award and Best Student Paper Award. Past IEEE ICCA Proceedings have been included in EI Compindex, IEEE Xplore and ISI Proceedings.

IEEE ICCA has a history of 28 years. It focuses on both theory and applications mainly covering the topics

of control and automation. In addition to the technical sessions, there will be invited sessions, keynote speeches, and plenary panel sessions.

The Keynote Lectures will be delivered by:

- Robert Bitmead, University of California, San Diego, USA;
- Christos Cassandras, Boston University, USA;
- Jie Huang, Chinese University of Hong Kong, Hong Kong, China;
- Ian Petersen, Australian National University, Australia;
- Jing Sun, University of Michigan, USA;
- Jifeng Zhang, Chinese Academy of Sciences, China

Topics of interest include but not limited to: Modeling and Control of Complex Systems; Linear Systems; Nonlinear Systems and Control; Robust and H-Infinity Control; Fuzzy and Neural Systems; Cooperative Control; Estimation and Identification; Fault Detection and Diagnostics; Process Control & Instrumentation; Motion Control; Flexible Manufacturing Systems; Integrated Manufacturing; Factory Modeling and Automation; Petri-Nets and Applications; Micro and Nano Systems; Cyber-Physical Systems; Sensor Networks; Networked Control; Control of Smart Power Delivery Systems; Control of Distributed Generation Systems; Optimal Control; Distributed optimization; Game Theory; Discrete Event Systems; Adaptive Control; Learning Systems; Intelligent and AI Based Control; Real-time Systems; Sensor/data Fusion; Robotics; Automated Guided Vehicles; Control Education; Control Applications; Process Automation; Man-machine Interactions; Smart Structures; Smart Buildings; Energy Efficiency; Multi-agent Systems; Signal Processing

Submission of Papers: Regular papers in the full version should be submitted online via PaperCept (<https://controls.papercept.net/conferences/scripts/start.pl>), with submission method described at the conference website at <http://iee-icca.org>. Submission of invited session proposals and general inquiries can be sent via email to iee-icca2020@gmail.com.

Important Dates

- Deadline for Manuscript Submission: February 15, 2020
- Notification of Acceptance: March 20, 2020
- Submission of Final Manuscripts: April 30, 2020
- Conference Date: July 6-9, 2020

Conference General Chairs, IEEE ICCA 2020:

Guoqiang Hu, Zongli Lin, Lihua Xie

Conference Program Chairs, IEEE ICCA 2020:

Yang Shi, Yan Wan, Fumin Zhang

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5.7. IEEE SmartGridComm 2020, USA

Contributed by: Anuradha Annaswamy, aanna@mit.edu

CALL FOR PAPERS AND SPECIAL SESSION PROPOSALS

The 11th IEEE International Conference on Communications, Control, and Computing Technologies for Smart Grids (SmartGridComm 2020)

7-9 October 2020

Tempe, Arizona

Conference link: <https://sgc2020.ieee-smartgridcomm.org/>

Important Dates:

Paper Submission: 20 April 2020

Acceptance Notification: 10 July 2020

Camera-Ready: 7 August 2020

Special Sessions/Workshops Proposals Deadline: 17 February 2020

Notification of Proposals Acceptance: 6 March 2020

The vision of the smart grid has emerged as a response to the challenge of providing a reliable, efficient and sustainable energy supply to modern society. It is widely accepted today that addressing this challenge requires significant advances in the areas of communication, security, control, data analytics and computing, and a careful integration of these advances with power electronics and power systems. The result will be a system that efficiently adapts to the behavior of energy consumers and energy providers, potentially embracing new business models as well.

The 11th IEEE International Conference on Communications, Control, and Computing Technologies for Smart Grids (SmartGridComm 2020) aims to provide a forum for researchers and practitioners from academia, industry, government institutions, and regulators with background in communications, energy, control, signal processing, analytics and information systems to exchange ideas, explore enabling technologies and share experiences related to smart grids.

Prospective authors are invited to submit original papers (standard two-column IEEE format, up to six pages) using EDAS (www.edas.info under the track "SmartGridComm 2020") on all aspects of communications, control and computing technologies for smart grids covered by the four technical symposia:

1. Communications and Networking
2. Cyber Security and Privacy
3. Control and Operations
4. Grid Analytics and Computation

All accepted papers will be candidates for Best Paper Award and Best Student Paper Award, which will be announced at the conference. Papers whose first author is a student at the time of submission are eligible for the Best Student Paper Award.

Additionally, as part of IEEE SmartGridComm 2020 technical program, a limited number of high-quality Special Sessions will offer insight into new or emerging topics of interest to the smart grid communications research community, together with the possible exhibitions. The organizing committee welcomes the submission of special session proposals. The proposals can be submitted through EDAS providing indication of the symposium where the proposal best fits. A special session can cover cross-symposia topics.

Organizing Committee

General Chair: Lalitha Sankar, ASU
General Co-Chair: Klara Nahrstedt, UIUC
Local Arrangements Chair: Anna Scaglione, ASU

TPC Co-Chairs:
Anuradha Annaswamy, MIT
Rakesh B. Bobba, OSU
György Dán, KTH
Oliver Kosut, ASU
Angela Zhang, CUHK

Finance Chair:
Oliver Kosut, ASU

Industry Liaisons:
Alfonso Valdes, UIUC
Anamitra Pal, ASU

Publications Chair:
György Dán, KTH
Publicity Chair:
Daisuke Mashima, ADSC

Website Chair:
Andrea Pinceti, ASU

Workshop Chairs:
Hao Zhu, University of Texas, Austin
Mahnoosh Alizadeh, University of California, Santa Barbara
Nanpeng Yu, University of California, Riverside

Tutorials Chairs:
Ali Tajer, Rensselaer Polytechnic Institute
Yang Weng, ASU

Student Travel Grant Chairs:
Subhonmesh Bose, UIUC
Vassilis Kekatos, Virginia Tech

Symposium co-chairs

Cybersecurity and Privacy:
Inaki Esnaola, Sheffield, UK
Kate Davis, Texas A&M

Binbin Chen, Singapore University of Technology and Design

Communications and Networking:

Fang Yang, Tsinghua

Sachin Shetty, Old Dominion University

Melike Erol-Kantarci, University of Ottawa, Canada

Control and Operations:

Hongjian Sun, Durham, UK

Meng Wang, Rensselaer Polytechnic Institute

Henrik Sandberg, KTH

Grid Analytics and Computation:

Chen Chen, Xi'an Jiaotong University

Baosen Zhang, U. Washington

Jinsub Kim, Oregon State

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5.8. CDC 2020 Call for Workshops, South Korea

Contributed by: Hyungbo Shim, hshim@snu.ac.kr

Call for Workshops Proposals

The 59th IEEE Conference on Decision and Control will be held Tuesday through Friday, December 8-11, 2020 at the International Convention Center, Jeju Island, Republic of Korea. The conference will be preceded by full-day and half-day pre-conference workshops on Monday, December 7, 2020, addressing current and future topics in control systems from experts from academia, research institutes, and industry.

The Workshop Chair invites your submission of workshop proposals. A Workshop proposal should focus on a specific theme related to the main conference topics, describing objectives and expected outcomes, including expected attendance. The workshop proposal should include the workshop presenters' short bio and contact information, the list of speakers, and the schedule (either half day of four hours or a full day of eight hours). Proposals should be submitted through PaperPlaza by May 1, 2020.

The workshops will be offered based on viable attendance. The 59th CDC reserves the right to cancel non-viable workshops.

The conference location is Jeju Island. It is a beautiful island with three UNESCO designations including the World Natural Heritage and Global Geopark. Being on the southern tip of the Korean Peninsula, Jeju Island is known for the subtropical climate and is a great tourist destination. It was formed by volcanic eruptions about 2 million years ago. The volcano Hallasan is the highest mountain in Korea, standing 1950 meters above sea level, and the longest lava tubes in the world can be found. The large Gotjawal Forest has long remained uncultivated due to the lava base unsuitable for agriculture, resulting in a unique ecology. The conference venue is in front of the ocean, surrounded by resort-style hotels.

Questions can be directed to the Workshop Chair, Professor Hyungbo Shim (hshim@snu.ac.kr).

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5.9. Latin American Control Congress, Cuba

Contributed by: Orestes Llanes Santiago, oresteslls@gmail.com

Call for Papers 19th Latin American Control Congress LACC 2020

The main objective of LACC 2020 is to bring the control world community, and especially the Control Latin American community to analyse the current development and future challenges of Automatic Control and particularly in Latin American

Technical Areas: It may be sent original papers in all technical areas of Automatic Control with special interest in Design Methods; Computers, Cognition and Communications; Mechatronics, Robotics and Components; Manufacturing and Logistics Systems and Process and Power Systems.

Invited Sessions: Invited sessions consist in six regular papers based on invitation by organizers. Topics of special interest to organize invited sessions but not limited are: Industry 4.0; Industrial Safety and Cybersecurity, Manufacturing, Robotics; Renewal Energies and Automation; Digitalization, Artificial Intelligence and Control. The proposal of invited sessions should be sent to the Chair of the International Program Committee.

Key Dates

April 30th, 2020 – Proposal of Invited Sessions

June 30th, 2020 – Draft Papers Submission

August 20th, 2020 - Notification of acceptance

August 25th, 2020 – Begin of Early regular registration (up to 2 papers)

September 20th, 2020 - Final paper submission

October 1th , 2020 – End of Early regular registration (up to 2 papers)

October 25 th, 2020 – End of Late regular registration (up to 2 papers)

October 31th, 2020 – Final Program Delivery

National Organizing Committee

Chair : Dra. Ivón O. Benítez González, CUJAE E-mail: novi@automatica.cujae.edu.cu

In the National Organizing Committee participate 20 people from different national Universities and companies related to Automatic Control.

International Program Committee

Chair: Dr. Orestes Llanes Santiago (Cuba) Email: orestes@tesla.cujae.edu.cu

In the International Program Committee participate 90 leading researchers from Argentina, Belgium, Brazil, Canada, China, Cuba, Ecuador, France, Germany, Italy, Japan, Low Lands, Mexico, Peru, Portugal, Puerto

Rico, Spain, United Kingdom and United States (<https://lacc2020.github.io/comitees>)

Language: English.

Guide for authors: The papers presented in the LACC 2020 will be published in a book of the series Studies in System, Decision and Control of Springer

(<https://www.springer.com/series/13304>).

Papers will not have more than 10 pages, including figures and bibliography. They must be presented in the Springer chapter book template

(<https://www.springer.com/de/authors-editors/book-authors-editors/resources-guidelines/book-manuscript-guidelines/manuscript-preparation/5636>)

The papers will be sent by using the LACC 2020 website.

For more information visit the website of the Congress: <https://lacc2020.github.io/>

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5.10. Conference on Control, Automation and Systems, South Korea

Contributed by: Zee Yeon Lee, conference@icross.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

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)

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5.11. Late Breaking Results: IFAC World Congress, Germany

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

Late Breaking Results Submissions for the IFAC World Congress Berlin; Deadline: February 28, 2020

IFAC 2020 World Congress (IFAC 2020),

July 12 - 17, 2020

Berlin, Germany,

www.IFAC2020.org

Good news, everyone! If you have missed the deadline for the IFAC World Congress in November or you have some other more recent exciting ideas that you would like to discuss during the World Congress, you can still submit your late breaking results until February 28.

Late Breaking Results Submissions are inherently different from the usual submission categories and have their own special advantages. The focus of those contributions is not on the publication of a manuscript, but on allowing discussions on the results during the congress.

For the late breaking results category, you submit a 2-4 pages paper. Your submission will then be reviewed (of course, the content needs to be correct and satisfy a certain quality standard). The most important difference to the standard submission is that the late breaking result papers will NOT be uploaded and published in the conference proceedings on PapersOnLine. Instead, information about your paper will only appear in the preprints (i.e. on the USB stick that every participant receives). In fact, you as late breaking results author can decide during the final submission whether you want your 2-4 pages paper to appear in the preprints or, alternatively, that you want only title, authors, keywords and abstract to appear in the preprints.

For more information please visit:

<https://www.ifac2020.org/>

We are looking forward to your late breaking results. – the IFAC 2020 organizing team

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5.12. IFAC Workshop on Cyber-Physical & Human Systems, China

Contributed by: Tariq Samad, tsamad@umn.edu

3rd IFAC Workshop on Cyber-Physical & Human Systems (CPHS 2020)

Call for Papers for the 3rd IFAC Workshop on Cyber-Physical & Human Systems (CPHS 2020), 3-5 December 2020, Shanghai, China (right before IEEE CDC 2020 in Jeju Island, Republic of Korea)

Advances in control and automation, communications, and computing have facilitated the integration of cyber-physical and human systems in a multidisciplinary manner. Human elements form closer ties with cyber-physical systems through human-in-the-loop controls or interactions with human intentions, emotions, actions and psychological states taken into consideration. Interactions and integration of cyber-physical systems and human systems have raised a wide range of interdisciplinary challenges and call for new technical advances. This conference series on Cyber-Physical and Human Systems (CPHS) aims to investigate these cross-disciplinary dimensions and develop new technological solutions.

CPHS 2020 aims to bring together researchers and practitioners to share scientific and technological advances and gain a deeper understanding of the interactions between and integration of cyber-physical systems and humans. Of particular interest are human-machine interaction and collaboration, augmented human-machine intelligence, humans as supervisors/operators of complex engineering systems, humans as agents in multi-agent systems, humans as elements in controlled systems, cognitive computing, and cyber-physical-social systems (CPSS).

Submissions are invited in the following categories:

- Full conference papers (6 pages maximum) addressing relevant CPHS topics will be peer-reviewed and, if accepted, presented at the workshop. Review, Tutorial and Vision papers are also welcome.
- Extended abstracts (2-4 pages) addressing topics of interest will be subject to the same review process as full papers and, if accepted, authors will be invited to present the work at the workshop.
- Invited sessions, consisting of six full papers and/or extended abstracts, to fill a two-hour block.
- Tutorials and/or workshops, as half-day or full-day events either before or after the workshop. Please contact the organizers for guidance and details.

Invited Session proposals should be submitted by Apr. 5th, 2020.

All papers should be submitted by May 15th, 2020.

For more details, see the advance version of the call for proposals, available at <https://bit.ly/393j0Wr>.

The CPHS2020 website, <http://www.cphs2020.org>, will open soon.

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6 Positions

6.1. PhD: City University of Hong Kong, Hong Kong

Contributed by: Ehsan Nekouei, enekouei@cityu.edu.hk

PhD position at the Department of Electrical Engineering, City University of Hong Kong. In this project, we will study the privacy level of human users in networked control systems, e.g., intelligent transportation networks and smart buildings, wherein sensor measurements are accessible by untrusted parties. We will also develop design methodologies to ensure the privacy of users within these systems, based on dynamic programming and reinforcement learning (RL) techniques.

International applicants will be considered for the Hong Kong PhD fellowship scheme which provides an annual stipend of HK\$309,600 (approximately US\$39,700) and a conference and a research-related travel allowance of HK\$12,900 (approximately US\$1,700) per year for each awardee for a period up to three years. <https://cerg1.ugc.edu.hk/hkpfs/index.html>

Requirements:

1. An undergraduate or a master degree from an internationally recognized university
2. Strong background in probability theory and control systems
3. Good programming skills
4. A background in dynamic programming and optimal control is a plus

Contact:

Please send the following documents to enekouei@cityu.edu.hk and indicate in the subject "PhD Application" 1. Your CV 2. One-page research statement and motivation 3. A copy of your transcripts

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6.2. PhD: Louisiana State University, USA

Contributed by: Marcio de Queiroz, mdeque1@lsu.edu

Applications are invited for a Graduate Research Assistant position in the Innovation in Control and Robotics Engineering (iCORE) Lab at Louisiana State University (<https://icorelab.github.io>) with a Fall 2020 start. Preference will be given to PhD students, although M.S. students are also invited to apply. The position is restricted to U.S. citizens or permanent residents.

The Graduate Assistant will be working in the area of decentralized control of multi-agent systems. Applicants should have B.S or M.S degrees in mechanical, electrical, or aerospace engineering with a background in control systems. Good programming and hardware skills are also desired.

Interested candidates should email their resume and academic transcripts to Dr. Marcio de Queiroz at mdeque1@lsu.edu. The selected candidates will be invited for a Skype or phone interview.

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6.3. PhD: University of Louisville, USA

Contributed by: Christopher M. Richards, chris.richards@louisville.edu

Ph.D. Position in AI and Control for Robotic Space Vehicles

A Ph.D. position is available beginning Fall 2020 in the Department of Mechanical Engineering at the University of Louisville, Louisville, KY, USA. The research encompasses topics of AI based GN&C with application to robotic space vehicles. The research group that the applicant would work in focuses on autonomous and semi-autonomous control of surface and flight vehicles with focus on nonlinear control systems (e.g., nonlinear plant dynamics, saturated control signals).

The position is a graduate teaching assistantship (GTA) that includes a stipend and covers full tuition. The GTA is guaranteed for 1 year. Transitioning to a graduate research assistantship (GRA) would then occur, and can occur sooner, provided outstanding performance.

Qualifications: The applicant must have a strong background in control systems and/or robotics. Applicants with experience in robust control, nonlinear control and/or AI are encouraged to apply. The applicant must be experienced with the Matlab/Simulink programming environment.

Dates: Beginning Fall 2020.

How to apply: Applications should be emailed to Dr. Chris Richards (chris.richards@louisville.edu), as soon as possible. Please include a CV, PDFs of relevant publications, and names and email addresses of at least two references.

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6.4. PhD: Univ. of South Florida and Embry-Riddle Aeronautical Univ., USA

Contributed by: Tansel Yucelen and K. Merve Dogan, yucelen@usf.edu

We are searching for three exceptional Ph.D. students with a strong background in control systems to perform high-quality and innovative theoretical and experimental research on resilient autonomous vehicles and cooperative robotics. These students, who will be graduate assistants, are expected to start working at the beginning of August 2020.

Our intention is to give our strong guidance in order to maximize the chances of our students of building a rewarding research career. If you are interested, please send an email to both Tansel Yucelen at yucelen@usf.edu (Assistant Professor of Mechanical Engineering at the University of South Florida) and K. Merve Dogan at k.merve.dogan@gmail.com (soon-to-be Assistant Professor of Aerospace Engineering at the Embry-Riddle Aeronautical University) including:

- (1) Your curriculum vitae (applicants with M.S. degree are preferred).
- (2) A publication on control systems (applicants with accepted or submitted conference or journal papers are preferred).
- (3) A concise paragraph (4-5 sentences maximum) that explains your theoretical and experimental experience on control systems.

- (4) A list that shows the undergraduate and M.S. courses the applicant took related to mathematics and control systems.
- (5) Three contact information (including name, e-mail, and phone number of the person) for letter of recommendation requests (one of these three contact information must include your current advisor).

Our research is focused on the creation of new information, control, and decision algorithms that reveal advanced systems such as highly capable autonomous vehicles and networked multivehicle systems. These systems are envisioned to elevate our society as well as to perform safety-critical operations with more robots and less humans. We place a strong emphasis both on theoretic research and experimentation for addressing fundamental and open real-world technological problems.

Our aim is to be recognized as one of the top research laboratories in the nation by significantly advancing the knowledge, training science-based engineers and professionals, and placing our students in top research places, to shape the future of our society.

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6.5. PhD: University of Lille, France

Contributed by: Thierry Floquet , thierry.floquet@ec-lille.fr

Three PhD positions starting October 2020 in nonlinear control and observation are available at CRISAL Laboratory at University of Lille, France.

Further information can be found at: <https://www.cristal.univ-lille.fr/profil/tfloquet#page1>.

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6.6. PhD: Université Libre de Bruxelles, Belgium

Contributed by: Michel Kinnaert, Michel.Kinnaert@ulb.ac.be

PhD position at Université libre de Bruxelles (ULB) - Belgium

A 4-year PhD position is open in the frame of the PhairywinD project, an innovative training network in the field of offshore wind grouping Belgian Universities and research centers. The research will be carried out primarily at the Department of Control Engineering of ULB, in close collaboration with the Electrical Energy Laboratory of the ESME Department at UGent and the Electrical Energy Group of the BEAMS department at ULB. The topic concerns supervision and control of offshore wind farms.

You should fulfil the following requirements to apply:

- You hold a Master degree in Electromechanical Engineering, Electrical Engineering, Control Engineering or a related area.
- You have an excellent command of English both for oral and written communication.
- You are able to work independently and formulate/tackle research problems.

More information on the position can be found at <https://saas.ulb.ac.be/job-offers/>

In order to apply, you should send, by February 15, 2020, a single pdf document including the following items:

- a letter of motivation
- a detailed CV
- e-mail address and phone number of two reference persons who can provide information regarding your abilities for research
- a summary of your Master thesis

to Professor Michel KINNAERT (michel.kinnaert@ulb.ac.be).

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

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6.7. PhD: Texas Tech University, USA

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

Ph.D. in Control of Swarm Robotic Systems

Two Ph.D. student position openings are available in Dr. Shu-Xia Tang's Control Systems Laboratory, anticipated to start around August 2020. Fully-funded scholarship is available to cover both tuition and living expenses. The successful candidates will work on research projects in the fields of swarm robotic systems or/and battery management systems. More research information can be found at <https://www.shuxia-tang.net/>.

Dr. Shu-Xia Tang 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 a Conference Editorial Board member of IEEE CSS and ASME. 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 with good GPAs, and international applicants must obtain satisfactory TOEFL/IELTS scores and acceptable GRE 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);
- Hands-on experience in experimental testing or/and hardware design (required);
- Expertise in MATLAB/SIMULINK or Python (required);
- Excellent mathematical skills (preferred);
- Excellent oral and written communication skills (preferred);
- Strong skills in control and optimization (preferred).

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6.8. PhD: Clemson University, USA

Contributed by: Mohammad Naghnaeian, mnaghna@clemson.edu

There are 2-3 PhD positions available at the Mechanical Engineering Department at Clemson University in the area of dynamic systems and control. Qualified applicants must have a working knowledge on classical and modern control.

The research topics involve optimal control, distributed optimization, and convex relaxation of nonlinear programs. Interested applicants are encouraged to send their CVs to Dr. Naghnaeian (mnaghna@clemson.edu) or Dr. Vahidi (vahidi@clemson.edu).

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6.9. PhD: Eindhoven University of Technology, USA

Contributed by: Frank Willems, f.p.t.willems@tue.nl

Self-learning control for future engines

PhD position at Eindhoven University of Technology in self-learning control for future engines.

Together with our industrial partners DAF, Delphi, Shell and TNO, we are investigating ultra-efficient engines running on renewable fuels, which are key for future smart and green heavy-duty transport. These combustion concepts are characterized by controlled auto-ignition. As a result, they lack direct control of combustion phasing and of rate of heat release and are sensitive for varying operating conditions. Therefore, closed-loop combustion control is essential to realize stable and safe operation.

In this PhD project, we aim to develop innovative control strategies that optimize the overall system efficiency by on-line shaping of the heat release process. Main objective is auto-tuning of the engine's control settings for every combustion cycle using real-time estimation of engine performance quantities. This self-learning, cycle-to-cycle control strategy shows close analogy with iterative learning control. Focus is on model-based development of observers and on systematic control analysis and synthesis for the studied discrete-time system. The potential of the developed self-learning control strategies will be demonstrated on our state-of-the-art engine platform using FPGA control hardware.

The position is funded for four years. We are looking for a talented, outstanding PhD candidate with a M.Sc. degree in Systems and Control, Electrical or Mechanical Engineering, or a related field, with background and/or interest in automotive powertrain applications, and with good command of the English language. Furthermore, the candidate is a team player, who will work together with three colleague researchers in this project.

To apply, send your CV, motivation letter and transcript of grades to: prof. Frank Willems (f.p.t.willems@tue.nl). Applicants will continuously be reviewed until the position is filled.

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6.10. PhD: University of Kentucky, USA

Contributed by: Xu Jin, xu.jin@uky.edu

Ph.D. Positions in intelligent control at the University of Kentucky

Ph.D. openings are available beginning Fall 2020 in the Department of Mechanical Engineering at the University of Kentucky, Lexington, KY, USA, on the topics of intelligent control. Our group's focus is on adaptive control and iterative learning control with applications to multiagent systems, constrained formation systems, robot manipulation systems, and cyber-physical systems. More research details can be found on Dr. Xu Jin's website: <https://www.engr.uky.edu/directory/jin-xu>, and the external links included.

The positions include stipend, health care, and tuition support. The offers are valid for two years, and renewable for additional years based on performance of the students. Qualifications: The applicants must first pass the GRE and TOEFL tests with satisfactory scores meeting the departmental minimum requirement. Applicants with a strong background in mathematics, control systems, and/or robotics, and with experience in mathematical analysis, Matlab numerical simulations, hands-on experiences on robotic systems, are encouraged to apply. The applicant must demonstrate competent analysis, experimental skills, and programming ability. Dates: Beginning Fall 2020 (1 position).

How to apply: Applications should be emailed to Dr. Xu Jin at xu.jin@uky.edu, as soon as possible. Please include a full CV (including GRE and TOEFL scores), PDFs of relevant publications, and names of at least three references. Upon initial email discussions, those who are encouraged to apply should then apply to the department as soon as possible, and indicate my name in the application package.

Short note about the department and the city: Mechanical Engineering is the largest department in the College of Engineering with 35 tenured and tenure-track faculty members, over 1,000 undergraduate students, and over 120 graduate students. The department also has state-of-the-art computational facilities, research labs, and classrooms. The city of Lexington is ranked #3 Best City to Raise a Family, # 8 City with the Lowest Living Cost, # 21 Best Places to Live in America, and # 31 Most Educated Cities in America. Located in the heart of the Bluegrass Region, Lexington is known as the "Horse Capital of the World".

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6.11. PhD: ETH Zurich, 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 as 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, identification and control in an uncertain interacting network. The topic is broadly defined as the development of data-driven methods for understanding the behaviour of interconnected systems.

The PhD student will be supervised by Prof. Roy Smith. Depending on the interests and abilities of the candidate, this may range from theoretical analyses, to algorithmic development, to experimental evaluation.

Candidate profile: 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 (<https://bit.ly/2GzxLnp>).

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

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6.12. PhD: Lorraine University, France

Contributed by: Jean-Christophe Ponsart, Jean-Christophe.Ponsart@univ-lorraine.fr

PhD Position: Lorraine University, France

A PhD position in Fault diagnosis and fault-tolerant control of LPV systems in Research Center for Automatic Control of Nancy (CRAN - www.cran.univ-lorraine.fr/anglais/) is opened from October 2020 <https://bit.ly/2U8gxWf>

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

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

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

Expected researches: The cause and nature of the faults affecting the process to be diagnosed and/or controlled have a significant influence on the diagnosis or FTC techniques to be used. According to [Pasqualetti, 2013], faults can be caused - among other things - by accidental or malicious corruptions of measures taking the form of unknown entries replacing the transmitted data or by transmission defects (missing data, saturations [Bezzaoucha, 2016], dead zones, etc). From the modeling point of view, two main classes of faults can be distinguished : additive and parametric. Among the latter, a particular care should be taken with input saturations that prevent the calculated control input from being applied to the system [Tarbouriech, 2011]. Several works have already been done in this direction [Bezzaoucha, 2016], but some obstacles still remain (restrictive assumptions, pessimism of the results, etc.) and limit their applications.

A more accurate description of the saturation phenomena in a polytopic form should make it possible to remove some of these locks. Constraints on state variables should also be included to take into account the validity domain of the polytopic rewriting of the original nonlinear model [Nguyen, 2015]. In the context of diagnosis and tolerance to additive faults, an interesting research direction would be to avoid the exclusive use of observer-based structures. Indeed, the observer is synthesized by minimizing the fault influence on the estimation error, and then the residue generator is constructed to be as sensitive as possible to faults, precisely from this estimation error. It would therefore be interesting to consider alternative structures for the diagnostic modules based on the available input and output signals of the system. Among the possible structures, the use of coprime factorization should be considered for the diagnosis and FTC of nonlinear systems. This technique was used in the linear framework for diagnosis [Frank, 1994] and for FTC [Zhou, 2001], but its extension to the non-linear framework remains open.

To summarize, after a preliminary bibliographical work, the following paths could be explored by the PhD student:

- polytopic modelling of transmission faults phenomena, such as saturation and/or dead zones, allowing them to be taken into account in the system model, and may be allowing the estimation of their parameters [Bezzaoucha, 2016] ;
- Observer-based diagnosis for nonlinear systems based on polytopic / LPV models [Lopez Estrada, 2014, Lopez Estrada, 2019] ;
- the extension of the coprime factorization-based diagnosis to nonlinear systems represented by polytopic models / LPV
- the extension of the obtained results to descriptor polytopic LPV models [Estrada Manzo, 2015, Lopez

Estrada, 2014].

Keywords: Fault diagnosis, fault tolerant control and nonlinear systems.

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6.13. PhD: Tallinn University of Technology, Estonia

Contributed by: Arvo Kaldmäe, arvo@cc.ioc.ee

A PhD position is available at Tallinn University of Technology, Estonia in the area of nonlinear control theory. A proposed title of the project is “Event-Based Control Strategies Based on Differential Flatness”. The PhD project is a part of a bigger project with the aim to develop a new modern method for controlling dynamical systems by combining the flatness-based feedforward control with the ideas of an event-based control. There are different theoretical and practical aspects that PhD candidate can study within the project.

PhD studies at Tallinn University of Technology are free and the university will employ the student as an early stage researcher. One can read more about PhD studies at Tallinn University of Technology from <https://www.ttu.ee/studying/phd-studies/admission-4/>

Estonia is known for its innovative solutions in ICT field. E-voting, many successful start-up companies and wide use of digital signature are only some examples of this success. An innovative environment, combined with great value for money, has made Estonia a desirable destination for both students and researchers in a knowledge-based society. Moreover, 89% of international students in Estonia are satisfied with their higher education. For more information about Estonia and studying in Estonia visit <https://estonia.ee/>
<http://www.studyinestonia.ee/en>

In order to apply for the position one must have master’s degree in mathematical control theory, systems and control, applied mathematics or related fields. The applicants should have excellent English language skills. The project involves theoretical/mathematical research and the student should contribute to this work. For more information, write to the supervisor Arvo Kaldmäe (arvo@cc.ioc.ee), Department of Software Science, Tallinn University of Technology.

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6.14. PhD: University of Louisiana at Lafayette, USA

Contributed by: Afef Fekih, afef.fekih@louisiana.edu

The Advanced Controls Laboratory at the University of Louisiana at Lafayette, USA has available funding to support a PhD student in the general area of advanced control design/Fault Tolerant Control with application to dynamic systems. Special considerations will be given to students who have a strong background in control of wind turbines. The successful candidate is expected to have a strong background in control systems theory and a very good knowledge of power systems. Programming skills in MATLAB/Simulink are required. A genuine interest and curiosity in the subject, excellent oral and written English communication skills are needed.

Applicants shall have a Master’s degree or equivalent in systems and controls, power systems, electrical engineering, mechanical engineering, applied Math or a related discipline. The PhD student is expected to carry out original research and complete coursework throughout the period of appointment. Results will be communicated in the form of journal publications, conference presentations, and the PhD dissertation.

The funding covers the cost of full tuition and stipends at a competitive rate and will start in Fall 2020.

Interested individuals should send their detailed curriculum vitae, a copy of their best publication in English, and if applicable GRE test scores to Dr. Afef Fekih (afef.fekih@louisiana.edu).

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6.15. 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 Lulea University of Technology 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, UGVs, Space Exploration and Biologically inspired Robotics, including the participation in the DARPA Sub-T challenge with the team CoSTAR.

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
- Decentralized Task execution and overall mission planning
- Visual Servoing
- Deep Learning for Autonomy and Adaptation
- Aerial Vision
- Networked Control
- Switching Reconfigurable Control
- 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/test-script?l=en>

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6.16. PhD/Postdoc: Leibniz University Hannover, Germany

Contributed by: Matthias A. Müller, mueller@irt.uni-hannover.de

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

We offer one PhD/Postdoc position at the Institute of Automatic Control at the Leibniz University Hannover, Germany. The project will focus on optimization-based state estimation and control for nonlinear uncertain systems. In particular, moving horizon estimation schemes shall be developed for which desired closed-loop guarantees can be given, but also a more general scope including data- and learning-based approaches shall be considered. The project will focus on the development of novel control-theoretic methods which are of relevance in various cutting-edge applications such as robotics, power systems, or autonomous driving.

The position is both suitable for a PhD student or Postdoc. We offer a competitive salary according to the German pay scale TVL-13, including social benefits. The candidate is expected to hold a Master/Doctoral degree in control engineering or a related subject with specialization in control. Also, teaching assistance in bachelor and master level control courses is expected.

Please send your application including a complete curriculum vitae, certificates, and a motivational letter until February 15, 2020 to mueller@irt.uni-hannover.de

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

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6.17. PhD/Postdoc/Engineer: University of Liège, Belgium

Contributed by: Tom Ewbank, tom.ewbank@uliege.be

This research position involves developing artificial intelligence capable of controlling an industrial robot to detect and grasp objects autonomously.

In today's fast-paced industrial environment, a specific system has to be configured and implemented for each new object to be grasped. The cost of development of such systems can be substantial and rarely affordable in the case of small production series/runs. We are thus launching a project that could make robotic systems more accessible, by providing an automated solution, as general as possible, to the problem of detecting and picking up a wide variety of different objects. For this project, named INTEGRIA, Prof. Louis Wehenkel and Prof. Damien Ernst are thus looking for researchers to work on the development of a robotic grasping solution using among others (deep) reinforcement learning techniques.

More information can be found at <https://bit.ly/2N69cSV>.

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6.18. Postdoc: Boston University, USA

Contributed by: Sean Andersson, sanderss@bu.edu

Postdoctoral position in estimation theory and control at Boston University

The Andersson Lab at Boston University has an open position for a talented and highly motivated postdoctoral research associate with outstanding research credentials to work on an NIH-funded project in the area of single particle tracking.

The project aims to bring tools from signal processing and systems and control to the analysis of single particle tracking data to create algorithms that jointly estimate particle trajectories and motion model parameters using a framework that allows for complex motion and observation models, including camera-specific descriptions, depth-dependent point spread functions, and dynamics that switch between different models.

Initial appointment is for one year, renewable for a second year.

Requirements: The successful applicant will have the necessary background to develop, implement, and apply the analysis techniques. Ideal candidates should have experience and expertise in at least some of the following areas:

- Systems and control:

- Optimal estimation theory
- Filtering and signal processing
- Coding (Matlab, C++, Python, or similar)

- Familiarity or even expertise in some the following areas would be advantageous but is not necessary:

- Optics and fluorescent microscopy
- Single particle imaging and tracking
- Mathematical modeling and analysis, particularly using Markov processes or more general stochastic processes

To apply, please send a statement of interest, a c.v., and the names of three references to Prof. Sean Andersson (sanderss@bu.edu).

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6.19. Postdoc: Université libre de Bruxelles, Belgium

Contributed by: Michel Kinnaert, 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, who is familiar with electrochemical applications (like batteries or fuel cells). 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 and 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 March 1 and June 1, 2020. More information on the conditions can be found at <https://saas.ulb.ac.be/job-offers/>

The applicants should send in 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 (michel.kinnaert@ulb.ac.be).

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

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6.20. Postdoc: Nazarbayev University, Kazakhstan

Contributed by: Matteo Rubagotti, matteo.rubagotti@nu.edu.kz

Postdoc: Model Predictive Control and/or Reinforcement Learning for Physical Human-Robot Interaction

The Department of Robotics and Mechatronics at Nazarbayev University (NU), Nur-Sultan, Kazakhstan, invites applications for a Postdoc with an anticipated start date of March/April 2020.

Position: The postdoc will be involved in an interdisciplinary team of researchers in robotics, computer science and psychology within the NU Collaborative Research Project “Stochastic and learning-based predictive control methods for physical human-robot interaction” (January 2020 – December 2022). The purpose of the project is to design innovative methods for workspace sharing of humans and robot manipulators based on recent developments in reinforcement learning and stochastic model predictive control (MPC), so as to tackle the inherent uncertainty of the human motion, at the same time guaranteeing the satisfaction of safety standards and taking care of the workers’ psychological well-being. The postdoc will be working on a subset of the following tasks, depending on his/her expertise: 1) obtain and analyze human motion data, acquired via motion capture systems; 2) develop and implement deterministic and stochastic MPC algorithms; 3) develop and implement deep reinforcement learning algorithms 4) integrate and test experimentally the developed algorithms.

The initial appointment will be until the end of the calendar year 2020, and will be ideally renewed, depending on the candidate’s performance, until the end of 2022. No teaching is expected by the candidate during the appointment. Salary is internationally competitive, and the candidate can apply for accommodation on-campus (please contact the project PI, Prof. Matteo Rubagotti at matteo.rubagotti@nu.edu.kz for

further information).

How to apply: Interested candidates should email the project PI, Prof. Matteo Rubagotti (matteo.rubagotti@nu.edu.kz), attaching a CV, a cover letter summarizing capabilities and interests, and contact information of two professional references.

Applications received by February 15, 2020, will receive full consideration, but the position will remain open until filled.

Minimum Qualifications: Applicants must have completed their Ph.D. by the time of appointment, by defending a PhD thesis on topics related to either model predictive control, deep learning, and/or robot motion planning, demonstrate excellent potential for research (mainly, by possessing a good publication record), and possess good programming skills.

Preferred Qualifications: Desirable experience includes work on either reinforcement learning, practical (real-time) implementations of control algorithms for robot manipulators, human-robot interaction, and/or experience with the operating system ROS.

About NU: Nazarbayev University (<http://www.nu.edu.kz>, <http://www.youtube.com/watch?v=J-57YqSgRrI>) is a modern and rapidly developing university located in the heart of Eurasia - Nur-Sultan city, the capital of the Republic of Kazakhstan. The University aims to develop into a research university of international renown combining education, research and innovation. Core features of Nazarbayev University include: academic freedom and institutional autonomy, predominantly internationally recruited faculty (currently, students, faculty and staff members come from 60 countries from all over the world), English as the language of instruction and research; entirely merit-based admission and progression system; and integrated teaching and research starting at the undergraduate level. The Department of Robotics and Mechatronics, as part of the School of Engineering and Digital Sciences, has a strong research focus, and its labs are equipped with state of the art collaborative robots (e.g., Kuka Iwr, UR5, UR5, Kinova Gen3 Ultralight Robotic Arm) and related facilities (e.g., inertial and vision-based motion capture systems).

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6.21. Postdoc: University of Sydney, Australia

Contributed by: Robin Vujanic, robin.vujanic@sydney.edu.au

Postdoc: University of Sydney, Australia

- Opportunity to contribute to world class operations and optimisation research for fleets of autonomous mining vehicles
- Join one of the largest robotics research groups in the world with over 120 researchers and engineers, and 1500m² of laboratory space
- Full-time, fixed term for up to 30 June 2021, with opportunities to extend project funding, Levels A-C, Base Salary: \$91,177 p.a. - \$150,204 p.a. plus leave loading and up to 17% superannuation). Relocation allowance will also be provided.

We are currently seeking a self-motivated and well-qualified postdoctoral researcher to contribute to theo-

retical and applied optimisation research, with a focus on optimisation of dispatching or schedules for fleets of mobile equipment and agents across complex mining systems. The work will include data-driven modelling of equipment and process performance, and application of a variety of state-of-the-art techniques to real-world decision-making in real-time. This role will provide an exceptional opportunity to work closely with both academia and industry partner, Rio Tinto, at the intersection of fundamental research into field-robotics and commercial mining operations. You will work with the Centre's team of software engineers to facilitate the real-world validation and operational deployment of your academic research. As a university academic, you will be expected to build research areas, engage in academic publication of research, and may also have the opportunity to teach at postgraduate and industry levels if desired.

Research experience in the following areas will be advantageous:

- fleet / multi-agent coordination (dispatching, scheduling); motion planning or decision-making algorithms
- decentralised / distributed control and optimisation
- applied statistics and data analytics
- discrete, combinatorial, mixed-integer optimisation and heuristic solution methods
- model-predictive control and/or robust optimisation techniques being used in receding horizon control

More details: <https://bit.ly/37ikXNX>

For further questions, do not hesitate to get in contact: robin.vujanic@sydney.edu.au

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6.22. Postdoc: KTH, Sweden

Contributed by: Mikael Johansson, mikaelj@kth.se

Postdoctoral position at KTH, Stockholm Sweden.

The Division of Decision and Control Systems at KTH's School of Electrical Engineering and Computer Science is looking for 1-2 postdocs with a strong interest in developing theory and methodology for large-scale optimization, decision-making and machine learning. The division consists of around 80 personnel (faculty, postdocs and PhD students) who contribute to a dynamic and ambitious research environment and friendly and open workplace. The division is internationally well established, with a comprehensive network of international research collaborations, and is involved in several national and international research projects with academia and industry.

The postdoc position involves individual and collaborative research, participation in research projects, and interaction with faculty, postdocs, and students. Opportunities to enhance important complementary skills of a modern scientist, e.g. in terms of research leadership, teaching and proposal writing, will also be given.

We seek candidates with a PhD in a relevant area (EE, CS, applied mathematics, or related field). You should have a vision, ambition and passion for research, and a track record of scientific accomplishments (e.g. publications in leading international conferences and journals, involvement in high-quality open source developments, etc.).

The complete announcement text can be found here:

<https://www.kth.se/en/om/work-at-kth/lediga-jobb/what:job/jobID:307876/type:job/where:4/apply:1>

Please do not hesitate to contact Professor Mikael Johansson, mikaelj@kth.se, for more details about the position.

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6.23. Postdoc: Aalto University, Finland

Contributed by: Themistoklis Charalambous, themistoklis.charalambous@aalto.fi

Postdoctoral Researcher Position on Distributed and Networked Control Systems A postdoctoral researcher position is available at the Distributed and Networked Control Systems (DNCS) Group, directed by Professor Themistoklis Charalambous, in the Department of Electrical Engineering and Automation, School of Electrical Engineering, Aalto University. We are seeking for exceptional postdoctoral researchers that have an earned PhD, that have evidence of independent research, to tackle complex and exciting problems in the fields of networked control systems, multi-agent systems, distributed coordination, distributed optimization or a similar topic. Experience in Intelligent Transportation Systems (ITSs), and more specifically in (large-scale) traffic control mechanisms is considered as a plus.

In addition to research work, the postdoctoral researcher is expected to participate to the supervision of students and teaching related to their expertise and research topics. The contract period is for two years. The starting date is the earliest convenient. The salary level for a postdoctoral researcher is competitive, and depends on experience and qualifications. The contract includes occupational health services and Finland has a comprehensive social security system.

Subject: Networked Control Systems (NCSs) have a wide range of applications in a plethora of areas, such as factory automation networks and autonomous systems, including Intelligent Transportation Systems (ITSs) and Robotics. As a result, we have been witnessing a great surge in both research and industrial interest towards the realization of such systems. The Postdoctoral researcher is expected to conduct outstanding and independent research on control-aware communication strategies and communication-aware control strategies for NCSs, multi-agent systems distributed coordination, distributed optimization, or a relevant topic.

Traffic congestion is a common problem faced by major cities, which is deteriorating due to urbanization and population growth, causing economic and social losses. For alleviating this problem, besides increasing the capacity of the network through new infrastructure (such as bridges, smart roundabouts and a new design of the network), the implementation of traffic control strategies represents a more efficient and sustainable alternative. In order to operate future transport systems safely and efficiently, there is need of designing and implementing a collaborative system, where (automated) vehicles and infrastructure exchange information and coordinate their actions. The efficient operation of smart transportation systems necessitates distributed decision making with local information exchange for real-time and reliable updates.

Candidate's profile: We are looking for highly motivated, research-oriented candidates that have completed their PhD degree before the start of the contract period. Proficiency in English is a necessary prerequisite. In the review process, particular emphasis will be given on the quality of the candidate's previous

research and international experience, together with the substance and innovativeness of their research interests, and their relevance to the DNCS group research programs.

How to apply: Please send your application as a single PDF file by the 28th of February 2020, through the recruitment system via "Apply now" link below. The application should include:

- 1) Letter of motivation (maximum 1 page in 10pt font size)
- 2) A complete curriculum vitae describing education and employment history with contact details
- 3) List of publications, with pointers to at most three of the most relevant publications
- 4) Contact details of at least two referees

For further information, please contact Professor Themistoklis Charalambous (firstname.lastname@aalto.fi), and questions related to recruitment process, please contact HR Coordinator Jaana Hanninen (firstname.lastname@aalto.fi). Applications via email will NOT be taken into account.

AALTO (Aalto University) has six schools with nearly 20,000 students and more than 400 professors. Our campuses are located in Espoo and Helsinki, Finland. The School of Electrical Engineering fosters basic research as well as the development of the latest technologies, providing top-quality engineering education. AALTO's Shanghai subject ranking 2016 in Electrical & Electronic Engineering is 51-75 world wide and 13-17 in Europe. Aalto is an international community: more than 30% of our academic personnel are non-Finns. Aalto is in world's top-10 of young universities (QS Top 50 under 50).

The Department of Electrical Engineering and Automation is a part of AALTO's School of Electrical Engineering. Hosting a multitude of international and world-leading researchers, the Department of Electrical Engineering and Automation provides a truly inspirational ecosystem, where scientists and engineers from different fields interact and work together by crossing traditional boundaries to solve the most challenging scientific and technological problems, provide an excellent education and produce greater wellbeing for society in general. Its main research focus areas are: control, robotics, autonomous systems, power systems, and Industrial electronics and informatics. The department develops technologies, data models and standards supporting the integration of industrial information systems.

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6.24. Postdoc: University of Cambridge and University of Southampton, UK

Contributed by: Raimund Ober, r.ober@soton.ac.uk

Postdoctoral Position (Southampton/Cambridge): Analysis of stochastic systems in cellular microscopy
Research Fellow Position: Stochastic Analysis of Single Molecule Microscopy Data

Signal Processing and Communication Laboratory
Department of Engineering
University of Cambridge

Centre for Cancer Immunology
University of Southampton, UK

Research Fellowship: £30,942 – 38,017 p.a.

(Additional supplements are available for exceptionally qualified applicants)

Deadline: Friday 28 February 2020

Applications are invited for a post-doctoral fellowship to carry out research on a joint project between Dr. Sumeetpal Singh at the Department of Engineering, University of Cambridge and Prof. Raimund J. Ober at the Centre for Cancer Immunology at the University of Southampton.

Single molecule microscopy is an important new methodology that promises to provide major new insights into biomedical processes. The data however, is very challenging to analyse due to the low signal-to-noise characteristics and the low photon count imaging characteristics and the necessarily complex probabilistic description underlying the acquired data. As a result, advanced statistical and computational methods need to be developed for the analysis of such data. This project aims to employ recent innovations from Machine Learning, Statistics and Signal Processing to analyse single molecule data, e.g. methods based on multi-object tracking, particle Markov Chain Monte Carlo, stochastic gradient methods etc. The project scope is flexible and covers issues concerning the tracking of molecules, model calibration, model identifiability, efficiency of estimators, and optimal experimental design. Project outcomes will be packaged as a suite of efficient computational methods for single molecule studies.

This is a unique opportunity to engage in an impactful application using modern stochastic and algorithmic methods. As such the candidate will have a very strong background in statistical and mathematical techniques with a Ph.D. in a relevant subject. A background in single molecule microscopy is not required. At the University of Southampton site the research fellow will be part of a highly interdisciplinary research group in the laboratory of Professors Ober and Ward who are currently relocating their research group from the USA. The group will consist of basic scientists, image analysts, microscopists and mathematicians/statisticians, engineers and computer scientists. The research program is devoted to the development of novel antibody-based therapeutics that, to date, have led to several new therapeutics that are currently in advanced clinical trials. This focus is supported by the development of advanced microscopy approaches, in particular for single molecule and subcellular trafficking studies. The research program is supported by major grants from the Wellcome Trust, Cancer Research UK, Faculty of Medicine and collaborating biopharma companies.

At the University of Cambridge, Dr. Singh is a Reader at the Engineering Department and is also a Fellow of the Alan Turing Institute. Dr Singh's research group is part of the Signal Processing and Communication Laboratory at the Engineering department and the focus of his group is on statistical modelling and inference for data-centric engineering. The Signal Processing and Communications Laboratory is home to 5 faculty members and some 35 research staff and research students. The laboratory has a strong track record in innovation in Data Science, Bayesian computational methodology, e.g. Particle filters, Markov Chain Monte Carlo; other areas of research include modern applications of Information theory and image processing.

The post will be based at the Centre for Cancer Immunology at Southampton General Hospital, a newly constructed research building that is the result of a significant fund-raising campaign. The Centre builds on a 40 year history of pioneering immunology and cancer research at Southampton. It is the first dedicated cancer immunology centre in the UK that brings the complete research pipeline under one roof: from pio-

neering discovery science to applied research and preclinical modelling and crucially onto first-in-human clinical trials and beyond. It is home to world-class research facilities, state-of-the-art scientific laboratories and a Clinical Trials Unit.

The position is currently planned to be for a length of two years. Candidates from the EU and outside the UK/EU are also encouraged to apply. In addition to the salaries listed above, benefits such as membership in a pension scheme is also provided.

Application details can be found at: <https://bit.ly/36D1zdG>

Please send expressions of interest to Prof. Raimund J. Ober at r.ober@soton.ac.uk and Dr. Sumeetpal Singh at sss40@cam.ac.uk.

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6.25. Postdoc: University of Groningen, The Netherlands

Contributed by: Pietro Tesi, pietro.tesi@unifi.it

Postdoctoral position, University of Groningen, The Netherlands, under the STW Smart Industry project: "Integrating models and real-time data for zero-defect manufacturing control systems"

Project description: High-precision manufacturing pushes the limits of what is possible with conventional manufacturing systems. The development of the new generation of manufacturing systems relies on a detailed understanding of the process disturbances which cause variations in the end-product. This project aims at developing models for high-precision control of manufacturing processes. Such accurate models can only be developed through integration of knowledge from high-fidelity physics-based models with knowledge obtained from large streams of sensor data. Integration of models and sensor data is key for the development of novel data analytic tools providing information on the product-to-product variations which can subsequently be used by novel data-driven control systems to pre-empt and remove such variations in real-time. The research consortium comprises two universities (Univ. Groningen and Univ. Twente) and seven small-medium and large companies. The project has two main research goals: (R1) the development of model-based data analytics tools for inferring / obtaining accurate and mature models which are applicable for control of high-precision manufacturing systems; and (R2) the development of control design mechanisms towards a self-learning control architecture based on the integration of process models and real-time process data.

Position description: In this advert, we will hire one postdoctoral researcher who will focus on research activity (R2). In particular, he/she will develop data-driven control algorithms to supplement classic model-based control architectures.

Duration: Initially one year, with the option of extending the contract for one or two more years. Applications are accepted on a rolling basis and the position will remain open until a successful candidate is found.

Qualifications:

- A Ph.D. degree in Control Theory, Mechanical, Computer, Electrical & Electronics Engineering, Applied Mathematics, Computer Science, or other equivalent degree programmes from top universities;

- An excellent background in Systems & Control. Preference might be given to candidates with strong expertise in one of the following areas: identification, nonlinear control, optimization, machine learning;
- Strong academic credentials, written and spoken English proficiency.

About the organization: Since its foundation in 1614, the University of Groningen has enjoyed an international reputation as a dynamic and innovative center of higher education offering high-quality teaching and research. Study and career paths in a wide variety of disciplines encourage currently more than 30,000 students and researchers to develop their individual talents. Belonging to the best research universities in Europe, the top 100 universities in the world and joining forces with prestigious partner universities and networks, the University of Groningen is truly an international place of knowledge.

Within the Faculty of Mathematics and Natural Sciences (FMNS), the Engineering and Technology institute Groningen (ENTEG) conducts engineering science research and covers a broad area of mechanical engineering, control engineering, materials engineering, and (bio)-chemical engineering. The research unit SMS-Cyber-physical Systems focuses on the modeling and control of complex systems with nonlinear dynamics and large-scale dimensions, and their interaction with communication and computational devices. Specific research lines include: control over networks, cyber-physical systems, data-driven estimation and control.

Information: Interested candidates please send your application together with your detailed CV, motivational letter (1/2-1 A4 page) and list of references to Pietro Tesi: p.tesi@rug.nl, pietro.tesi@unifi.it, Bayu Jayawardhana: b.jayawardhana@rug.nl and Claudio De Persis: c.de.persis@rug.nl (with f.g.fokkens@rug.nl in cc).

Please specify the following text in the subject: Data-driven control - PostDoc application

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6.26. Postdoc: Lulea University of Technology, Sweden

Contributed by: George Nikolakopoulos, geonik@ltu.se

Multiple Post Doc Positions in Aerial and Space Robotics

The Robotics Team at the Department of Computer Science and Electrical and Space Engineering at Lulea University of Technology 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, UGVs, Space Exploration and Biologically inspired Robotics, including the participation in the DARPA Sub-T challenge with the team CoSTAR.

The positions will involve dense research activities in the following but not limited areas:

- Field Robotics
- Vision for robotic navigation
- Collaborative formation and scenario accomplishment
- Visual Servoing
- Space Vision and Space Visual Features
- Quaternion control design

- Space Visual Odometry
- Advanced Model Based Filtering (e.g. EKF, UKF)
- Perception and Estimation
- Switching Reconfigurable
- Collaborative Mapping and Exploration

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 control and estimation 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: - <https://www.ltu.se/ltu/Lediga-jobb/test-script?l=en>

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6.27. Postdoc: Beihang University, China

Contributed by: Qing Gao, qing.gao.chance@gmail.com

Postdoc: Beihang University (Beijing University of Aeronautics and Astronautics)

A Postdoc position (2-years fixed term) is available in control theory/machine learning, at the Department of Automatic Control, Beihang University, China. The AC department is among the top 5 in the discipline of control science and engineering among Chinese universities. Interested applicants should have all of the following qualifications:

- a) a doctoral degree in control engineering, applied mathematics, or related fields;
- b) strong background in control theory or artificial intelligence. Knowledge in stochastic systems is preferred but not essential;
- c) at least one paper published in top control journal like IEEE Trans. and Automatica.

This position will be under Prof. Qing Gao and Prof. Jinhua Lv's supervision.

Information about prof. Gao can be found at <https://bit.ly/3b8LvE2>

Information about Prof. Jinhu Lv can be found at
<https://bit.ly/3834sWo>

Only Chinese versions are available. Please translate to English when necessary.

For the successful applicant, the annual salary will be CNY 230,000 or 300,000, depending on his/her research background. For other benefits, for example, the successful applicant's children will have access to Beihang's kindergarten/primary school/middle school, please contact Prof. Gao for details.

Inquiries or applications can be sent directly to gaoqing@buaa.edu.cn. A full application should contain a CV, Representative publications, and at least two reference letters.

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6.28. Faculty: University of Washington, USA

Contributed by: Kimberly Maczko, kmaczko@uw.edu

Tenure-track faculty position announcement: The William E. Boeing Department of Aeronautics & Astronautics at the University of Washington invites applications for a full-time tenure-track faculty position with a nine-month service period. We are primarily focused on hires at the Assistant Professor rank, although individuals at higher ranks with exceptional credentials may be considered. Our faculty embrace a culture of excellence and inclusion, are committed to graduate and undergraduate education and develop innovative research programs. Particular research areas of interest include, but are not limited to, formal methods for aerospace Guidance, Navigation and Control (GN&C) verification/validation, autonomy and control, sensing and navigation, data science, aerospace robotics, and atmospheric flight and space systems. Candidates will be expected to complement existing research areas in the Department and across campus, and to assume a leadership position in aerospace-related research.

The Department is committed to excellence in research and teaching, with the expectation that all University of Washington faculty engage in teaching, research, and service. The successful candidate is expected to develop a vigorous and innovative externally-funded research program, to provide high-quality teaching that integrates research with instruction at both the undergraduate and graduate levels, and to participate in service activities.

The William E. Boeing Department of Aeronautics & Astronautics is one of the original aerospace engineering departments in the nation and the only one of its type in the Pacific Northwest, a region whose extensive aerospace industry continues to be a major contributor to the technological development, economic vitality, and security of the United States. Under its strategic plan, the department has been building strength in the multidisciplinary areas of aircraft systems, space systems, and energy systems, while continuing its investment in basic research in areas of fundamental importance to aeronautics and astronautics. For information about the department, please visit <http://www.aa.washington.edu>.

Qualifications: Applicants are required to have a Ph.D. or foreign equivalent in an appropriate engineering or related discipline by the date of appointment.

UW is an affirmative action and equal opportunity employer. All qualified applicants will receive consideration for employment without regard to race, color, creed, religion, national origin, sex, sexual orientation,

marital status, pregnancy, genetic information, gender identity or expression, age, disability, or protected veteran status.

Commitment to diversity: A&A is committed to being a model of diversity in the UW College of Engineering. We are actively engaged in broadening our offerings to better serve all demographics of learners and the spectrum of societal and industry needs. In addition, UW is committed to building diversity among its faculty, librarians, staff, and student communities, and articulates that commitment in the UW Diversity Blueprint (<http://www.washington.edu/diversity/diversity-blueprint/>). As part of this effort, we strongly encourage applications from women and underrepresented minority candidates, individuals with disabilities, covered veterans, and people from other diverse and underrepresented groups. UW is a recipient of a National Science Foundation ADVANCE Institutional Transformation Award and a leader in increasing the advancement of women in academic science and engineering careers. UW's Office for Faculty Advancement promotes the hiring, retention, and success of a diverse and inclusive faculty at the University of Washington (<http://www.washington.edu/diversity/faculty-advancement/>). The UW Faculty Code recognizes faculty efforts in research, teaching and/or service that address diversity and equal opportunity as important contributions to a faculty member's academic profile and responsibilities.

Application instructions: The position will be open until filled. UW is using Interfolio's Faculty Search to conduct this search. Applicants to this position receive a free Dossier account and can send all application materials, including confidential letters of recommendation, free of charge.

Please provide pdf files for the following requested materials:

- Cover letter indicating interest and fit with the position.
- A current curriculum vitae.
- Complete contact information for five references.
- A research statement that includes the candidate's vision for their research for the next five years and the potential for research collaboration.
- A statement of teaching and education interests and/or philosophy.
- A statement of diversity/equity/inclusion reflecting how your approach to research, education and/or service contributes to positive social change and is inclusive of individuals with different gender, class, race, ethnicity, religious affiliation, national and cultural boundaries, national origin, worldview, ability, and other identities. We invite you to discuss related experiences in research, education and service, personal areas of growth with regard to issues of diversity, inclusion, equity, and justice, and your potential to mentor and educate students from diverse backgrounds.

For any administrative issues or inquiries related to the search, please contact Kimberly Maczko, kmaczko@aa.washington.edu. For help signing up for Interfolio, accessing your account, or submitting your application, please check out Interfolio's help and support section or get in touch via email at help@interfolio.com or phone at (877) 997-8807.

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6.29. Faculty: Norwegian University of Science and technology, Norway

Contributed by: Department of ICT and Natural Sciences, guro.paaske@ntnu.no

Full professorship in System Dynamics for Development of Digital Twins At the Norwegian University of Science and technology (NTNU), we have a vacancy for a Professor in System Dynamics for Development of Digital Twins, at the Department of ICT and Natural Sciences (IIR) in Ålesund. This is a newly established industrial sponsored position in collaboration with Equinor.

Please view the link for further information and for submitting your application:

<https://www.jobbnorge.no/en/available-jobs/job/174936/professor-in-system-dynamics-for-development-of-digital-twins>

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6.30. Faculty: NYU Abu Dhabi, United Arab Emirates

Contributed by: Claudia Wald, cw1160@nyu.edu

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

The Division of Engineering at NYU Abu Dhabi is searching for rising scholars to conduct important research and teach the next generation of global leaders.

You are invited to apply for a tenure-track position in the Robotics Area within the Electrical and Computer Engineering (ECE) program. Emphasis will be given in autonomous and intelligent systems. The available opening is at the Assistant or Associate Professor ranks. The ECE-program has invested in robotics and there are exceptional facilities in haptics, BMI, vision, and autonomous systems including its 1000m³ motion capture arena. Faculty in NYUAD's ECE have close collaboration with their colleagues at NYU's ECE and CSE departments. NYUAD's Global PhD student fellowship program assists in tightening this collaboration and sharing of knowledge and expertise.

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

About NYU Abu Dhabi: NYU Abu Dhabi is a pioneer of higher education in a global world, dedicated to excellence in teaching and research, while advancing cooperation and progress on humanity's shared challenges. Part of the NYU global network, NYU Abu Dhabi offers an outstanding liberal arts and science education to students from the United Arab Emirates, United States, and around the world, focusing on intercultural understanding and leadership. It supports innovative research that pushes the frontiers of knowledge forward and responds in powerful and interdisciplinary ways to vital global and local ques-

tions. NYU Abu Dhabi advances NYU as a model university for the 21st century and contributes in multiple ways to the development of a sustainable, knowledge-based economy in Abu Dhabi.

As an international center of excellence in teaching and research, our goal is to attract outstanding faculty who are leaders in their fields, encouraging them to create programs that draw outstanding students, and providing an intellectually rich environment.

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

Qualifications: This position requires a Ph.D. degree in Electrical and Computer Engineering or related disciplines. We seek individuals who have, or have the potential to develop, a strong record of scholarship and have the ability to develop and lead high-quality research.

It is also expected that the successful candidate will obtain affiliation at the NYU Tandon School of Engineering, which allows research and teaching privileges as well as access to programs and facilities in New York.

Application Instructions: To apply for this position, please submit the following items:

- CV
- Cover Letter
- Statement of Teaching Interests
- Recent teaching evaluations (if available)
- Statement of Research Plans
- Names and contact information for three (3) references. (Only referees of shortlisted candidates will be contacted.)

We will begin reviewing applications on February 1, 2020 and will continue on a rolling basis. Shortlisted candidates are expected to be invited for campus visits in Abu Dhabi and New York in Spring 2020. We anticipate that successful candidates can start the appointment and relocate to Abu Dhabi in academic year 2020-2021.

For questions about this position, please email nyuad.engineering@nyu.edu, or contact the ECE-program head anthony.tzes@nyu.edu.

If this sounds like you, apply now. Join NYU Abu Dhabi, an exceptional place for exceptional people.

UAE Nationals are encouraged to apply.

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6.31. Research Scientist/Engineer: Intelligent Fusion Technology, USA

Contributed by: Genshe Chen, gchen@intfusiontech.com

Intelligent Fusion Technology (IFT) is a Research and Development (R&D) company focused on information fusion technologies from basic research to industry transition and product development and support. We are working on modeling, control, communication, signal/image/text processing, security, autonomy, and decision making in networked systems. We are looking for talented developers majoring in engineering (e.g., EE, ME, AE), computer science, and/or applied mathematics to join our multidisciplinary team as full-time employees or interns.

In particular, we are looking for candidates having direct experience in one or several areas as follows:

- Engineering Design

- Pattern recognition, image processing, video analysis;
- Full motion video/wide area motion imagery (WAMI) exploitation;
- Wireless communication, 5G, SATCOM;
- Cognitive radio network, software defined radio;
- Cyber security;
- Social network analysis, text analytics;
- RF circuit design, electromagnetic wave Propagation, and antenna design;
- FPGA implementaion.

- Control and Mathematics

- Game theoretic estimation and control;
- Graph theory;
- Information theory;
- Machine learning, transfer learning;
- Robotics dynamic and control;
- Guidance, navigation and control for aerospace vehicle;
- Astrodynamics;
- Complex system modeling and simulation.

- Software Design

- Cloud computing, edge computing;
- Service Oriented Architecture, Microservice;
- Open Architecture/ Open sources government off-the-shelf (GOTS) development;
- Geospatial Information System;
- Human Factors display technology and integration.

Candidate with a master degree and above are preferred. Direct industry experience is a plus. The pay is competitive and can be negotiated.

Please send your application to hr@intfusiontech.com if you are interested.

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6.32. Engineer: LG Electronics, USA

Contributed by: Siddharth Goyal, sidd.goyal@lge.com

Staff Software Engineer at LG Electronics US, Commercial Air Conditioning Division

Contribute to key overall division initiatives in product development design requirements and testing, product application and competitive strategy, industry compliance initiatives, and contributions to growing the VRF and DFS industry in the US market. Working in conjunction with other functional areas (Operations, Product Planning and Marketing) across the US CAC team to deliver one message for LG's customers and help drive growth

Responsibilities

- Designs, develops, troubleshoots and debugs software programs for enhancements and new products. Develops software and tools in support of design, infrastructure and technology platforms, including operating systems, compilers, routers, networks, utilities, databases, cloud-based and Internet-related tools. Determines hardware compatibility and/or influences hardware design.
- Ensures quality of multiple application codebases in support of medium to large initiatives of strategic importance
- Applies expert technical capabilities across discipline(s)
- Delivers IT-wide and other communications conveying domain level directions
- Provides technical guidance to projects and new initiatives including architecting and creating a high level design, working with other technical leaders to drive out the detailed design and implementation
- Drives and fosters Division-wide performance standards, expectations and practices to support ongoing process improvement
- Interface with top technology partners and contribute new ideas for innovation and breakthrough technologies.
- Architects, develops, and creates quick software prototypes

Additional Details: <https://bit.ly/35sZ10X>

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6.33. Internship: GE Research, USA

Contributed by: Eric Westervelt, westerve@ge.com

Summer Internships at GE Research

Control System Research Engineer Technical Fellow Summer Internships at GE Research

Location: GE Research, Niskayuna, NY

Timing: Summer 2020

Job Description: GE Global Research is looking for interns specializing in the areas of Controls and Optimization. The interns will conduct research on control, real-time optimization, operations research supply chain optimization, and cybersecurity as applied to industrial challenges across aviation, additive manufacturing, energy, healthcare, and transportation domains.

The interns work side by side with experts in the field, completing challenging technical projects, applying their theoretical knowledge to real-life technical problems, and developing skills in a cutting edge global environment. Opportunities for networking and showcasing project accomplishments are offered.

This internship opportunity will help students gain valuable hands-on experience and get a critical jump start on a career in industrial research.

Apply online:

<https://jobs.gecareers.com/global/en/job/3353108/GE-Research-Technical-Fellow-Intern-Summer-2020>

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