

# E-LETTER ON SYSTEMS, CONTROL, & SIGNAL PROCESSING ISSUE 389, JANUARY 2021

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The next E-Letter will be mailed out at the beginning of February 2021.

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- 6.5 PhD: Virginia Tech, USA
- 6.6 PhD: Maynooth University, Ireland
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- 6.8 PhD: University of Kentucky, USA
- 6.9 PhD: Arizona State University, USA
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- 6.22 Faculty: University of Waterloo, Canada
- 6.23 Faculty: Peng Cheng Laboratory, China

6.24 Faculty: Lulea University of Technology, Sweden  
6.25 Faculty: The University of Texas at Dallas, USA

## 1 IEEE CSS Headlines

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### 1.1. Become a CSS Member

Contributed by: Ahmad Taha, [ahmad.taha@utsa.edu](mailto:ahmad.taha@utsa.edu)

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

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### 1.2. Follow the CSS Social Media Accounts

Contributed by: Ahmad Taha and Ankush Chakrabarty [ahmad.taha@utsa.edu](mailto:ahmad.taha@utsa.edu), [chakrabarty@merl.com](mailto:chakrabarty@merl.com)

Follow us on Twitter <https://twitter.com/CSSIEEE>

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### 1.3. CSS Technically Cosponsored Events

Contributed by: Luca Zaccarian, CSS AE Conferences, [zaccarian@laas.fr](mailto:zaccarian@laas.fr)

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

- 2021 33rd Chinese Control and Decision Conference (CCDC 2021). Kunming, China. May 22-24, 2021. <http://www.ccdc.neu.edu.cn/>

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

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

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

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

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#### 1.4. CSS Publications Content Digest

Contributed by: Kaiwen Chen, [kaiwen.chen16@imperial.ac.uk](mailto: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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#### 1.5. IEEE Transactions on Automatic Control

Contributed by: Alessandro Astolfi, [ieeetac@imperial.ac.uk](mailto:ieeetac@imperial.ac.uk)

IEEE Transactions on Automatic Control

Volume 65 (2020), Issue 12 (December)

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- Minimal series-parallel network realizations of bicubic impedances Timothy H. Hughes, p. 4997
- An Input-Output Approach to Structured Stochastic Uncertainty Maurice Filo, Bassam Bamieh, p. 5012
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## 1.6. IEEE Transactions on Control Systems Technology

Contributed by: Michelle Colasanti, [ieeetctst@osu.edu](mailto:ieeetctst@osu.edu)

IEEE Transactions on Control Systems Technology

Volume 29 (2021), Issue 1 (January)

### Regular Papers:

- Full State Feedback Foiling Control for America's Cup Catamarans, R. Bencatel, S. Keerthivarman, I. Kolmanovsky, and A. R. Girard, page 1
- Task Learning, Intent Prediction, and Adaptive Blended Shared Control With Application to Excavators, Z. Jin, P. R. Pagilla, H. Maske, and G. Chowdhary, page 18

- Resilient Flight Control: An Architecture for Human Supervision of Automation, A. B. Farjadian, B. Thomsen, A. M. Annaswamy, and D. D. Woods, page 29
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## 1.7. IEEE Control Systems Letters

Contributed by: Francesca Bettini, [bettini@dei.unipd.it](mailto:bettini@dei.unipd.it)

IEEE Control Systems Letters

Volume 5 (2021), 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:

- Bearing-Only Formation Tracking Control of Multi-Agent Systems With Local Reference Frames and Constant-Velocity Leaders, J. Zhao, X. Yu, X. Li, and H. Wang, p. 1
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## 1.8. IEEE Transactions on Control of Network Systems

Contributed by: Arij Barakat, [arij.barakat@kaust.edu.sa](mailto:arij.barakat@kaust.edu.sa)

IEEE Transactions on Control of Network Systems

December 2020, Volume 7, Issue 4

The table of contents of this IEEE TCNS issue is available on:

<https://cemse.kaust.edu.sa/tcns/volume-7-2020-issue-4-december>

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- Sampled-Data Set Stabilization of Impulsive Boolean Networks Based on a Hybrid Index Model

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- Redefined Reconstructibility and State Estimation for Boolean Networks

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- Tradeoff Between Controllability and Robustness in Diffusively Coupled Networks

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- Joint Cross-Layer Optimization in Real-Time Networked Control Systems

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- Barrier Function Based Collaborative Control of Multiple Robots Under Signal Temporal Logic Tasks

L. Lindemann and D. V. Dimarogonas

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- Data-Driven I/O Structure Learning With Contemporaneous Causality

J. A. W. B. Costanzo and O. Yagan,

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- Mixed Autonomy in Ride-Sharing Networks

Q. Wei, R. Pedarsani, and S. Coogan

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- Resilient Containment Control in Adversarial Environment

J. Yan and C. Wen

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- Asynchronous Distributed Power Control of Multimicrogrid Systems

Z. Wang, L. Chen, F. Liu, P. Yi, M. Cao, S. Deng, and S. Mei

p. 1960

- Distributed Continuous-Time Algorithms for Optimal Resource Allocation With Time-Varying Quadratic Cost Functions

B. Wang, S. Sun, and W. Ren

p. 1974

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## 1.9. IEEE CSS Technical Committee on Intelligent Control

Contributed by: Tansel Yucelen, [yucelen@usf.edu](mailto:yucelen@usf.edu)

### Becoming a Member of the IEEE CSS Technical Committee on Intelligent Control

I am writing this message as the Chair of the IEEE Control System Society (CSS) Technical Committee on Intelligent Control (TCIC). Here is our mission statement:

*To foster a community of members who advance the science and technology and provide forums for the theoretical and practical considerations of intelligent control techniques and their application to devices and systems.*

Please visit the TCIC webpage

<http://intelligent-control.ieeecss.org/intelligent-homeforfurtherdetails>.

Since our TCIC has the opportunity to bridge multiple disciplines ranging from electrical, mechanical, and aerospace engineering to computer science, we are looking for new members and student members that can contribute to intelligent control techniques and their applications (e.g., space systems, robotics, manufacturing systems, automotive systems, automated highway systems, aircraft, spacecraft, underwater vehicles, land vehicles, process control, consumer products, and healthcare).

If you are interested to be a member or a student member, please send me (1) your name, (2) your position, (3) your affiliation, and (4) your CV. (Note that you need to be a member or a student member of the IEEE and CSS.)

Tansel Yucelen, Ph.D., IEEE TCIC Chair ([yucelen@usf.edu](mailto:yucelen@usf.edu))

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## 1.10. CFP: IEEE Trans. on Automatic Control Special Issue on Learning/Control

Contributed by: George J. Pappas, [pappasg@seas.upenn.edu](mailto:pappasg@seas.upenn.edu)

IEEE Transactions on Automatic Control

Special Issue on Learning and Control

Deadline: May 1, 2021

Special Issue Scope: Over the past two decades, advances in computing and communications have resulted in the creation, transmission and storage of data from all sectors of society. Over the next decade, the biggest generator of data is expected to be Internet-of-Things devices which sense and control the physical world. This explosion of data requires a rapprochement of areas such as machine learning, control theory, and optimization. The availability and scale of data, both temporal and spatial, brings a wonderful opportunity for our community to both advance the theory of control systems in a more data-driven fashion, as well as have a broader industrial and societal impact.

There are various challenges on the interface between the control community and the machine learning community. The aim of this special issue is to bring together some of the significant developments on the interface between machine learning, dynamics, and control systems. Our special issue welcomes both



regular papers and technical notes on topics that include but are not limited to:

- Foundations of learning of dynamics models
- System identification
- Episodic learning, online learning, and adaptive control
- Optimization for machine learning
- Data-driven optimization for dynamical systems
- Distributed learning over distributed systems
- Reinforcement learning for physical systems
- Safe reinforcement learning and safe adaptive control
- Statistical learning for dynamical and control systems
- Bridging model-based and learning-based dynamical and control systems
- Robustness of data-driven and learning-based control systems
- Physics-constrained learning
- Physical learning in dynamical and control systems applications in robotics, autonomy, transportation systems, cognitive systems, neuroscience, etc.

#### Special Issue Guest Editors

- Anuradha Annaswamy, MIT [aanna@mit.edu](mailto:aanna@mit.edu)
- Manfred Morari, University of Pennsylvania [morari@seas.upenn.edu](mailto:morari@seas.upenn.edu)
- George J. Pappas, University of Pennsylvania [pappasg@seas.upenn.edu](mailto:pappasg@seas.upenn.edu)
- Claire Tomlin, UC Berkeley [tomlin@eecs.berkeley.edu](mailto:tomlin@eecs.berkeley.edu)
- Rene Vidal, Johns Hopkins University [rvidal@jhu.edu](mailto:rvidal@jhu.edu)
- Melanie Zellinger, ETH Zurich [mzeilinger@ethz.ch](mailto:mzeilinger@ethz.ch)

#### Special Issue Schedule

- Submission Site Opens March 1, 2021
- Paper Submission Deadline May 15, 2021
- Author Notification November 1, 2021
- Final Manuscript Submissions January 1, 2022
- Special Issue Publication Summer 2022 (tentative)

More information:

<http://ieeecss.org/publication/transactions-automatic-control/special-issues>

\*Note: The Paperplaza submission link given below will allow submission to this special issue after March 1, 2021. When submitting the paper, the system will prompt the user to select submission to the special issue.

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## 2 Miscellaneous

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### 2.1. Virtual Lightning Tutorial Series

Contributed by: Kai Cai, [kai.cai@eng.osaka-cu.ac.jp](mailto:kai.cai@eng.osaka-cu.ac.jp)

Virtual Lightning Tutorial Series on Discrete Event Systems 2021

Organized by the IEEE CSS TC DES

Each 3rd Thursday of each month in 2021 (except for August) at 13:00 UTC (Paris 14:00, New York City 8:00, Beijing 21:00)

Registration using the link below: free, but required

<https://tc-des.mpi-sws.org/registration/>

URL: <http://discrete-event-systems.ieeecss.org/tc-discrete/tutorial-series-2021>

The IEEE CSS TC DES (co-)chairs are organizing a virtual lecture series throughout 2021 to enhance communications in our community during the current Covid-19 pandemic.

Scope: In order to include students/researchers on all levels (ranging from phd-students, to post-docs, to junior and senior faculty members) we have decided on the format of “lightning tutorials” (via Zoom), followed by a virtual coffee break organized via break-out rooms randomly assigning 5-6 people to a room for more informal chatting. Lightning tutorials are rather short (40 minutes) and are intended to introduce a fundamental or emerging topic/sub-field of DES research to a broad audience. They can be thought of as an introduction to a review paper or a book chapter, introducing the particular topic/sub-field, why it is worth studying (either from a theoretical or a practical perspective), its main insights (what is known/what is unknown) and maybe a list of influential papers in this field.

Registration: Registration is free. For security reasons we require pre-registration via the link below:

<https://tc-des.mpi-sws.org/registration/>

Participants will receive log-in details to the virtual zoom meeting after registration.

Schedule:

- 21.01.2021, Christoforos Hadjicostis “State Estimation and Event Inference in DES: Implications to Detectability, Diagnosability and Opacity”
- 18.02.2021, Stephane Lafortune “Discrete Event Systems: Opacity and Its Enforcement”
- 18.03.2021, Necmiye Ozay “Abstractions: A Bridge Between Continuous Dynamics and Discrete Event Systems”
- 22.04.2021, Stavros Tripakis “Distributed Synthesis”
- 20.05.2021, Mariagrazia Dotoli “A Survey on Petri Nets Models for Logistics and Transportation Systems”
- 17.06.2021, Xiren Cao “From Perturbation Analysis of DEDS to a General Optimization Theory in the AI Era”
- 22.07.2021, Alessandro Giua “Partially Observed Discrete Event Systems: from Estimation to Cyber-Security”
- 16.09.2021, Martin Fabian “On Modular and Compositional Approaches to Compute Supervisors”
- 21.10.2021, Thomas Moor “Supervisory Control of Non-Terminating Processes — a Concise Introduction”

- 18.11.2021, Joanna (Asia) van de Mortel – Fronczak "Synthesis-Based Engineering of Supervisory Controllers – From Specification to Implementation"
- 9.12.2021, Christos Cassandras "Event-Driven Receding Horizon Control for Complex Problems in Network Systems"

Website: More information can be found at:

<http://discrete-event-systems.ieeecss.org/tc-discrete/tutorial-series-2021>

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## 2.2. Online Course on Computational Machine Learning

Contributed by: Raj Rao Nadakuditi, [rajnrao@umich.edu](mailto:rajnrao@umich.edu)

U. Michigan Online Course on Computational ML (Feb. 15 - May 15, 2021)

The Continuum Jumpstart Course Computational Machine Learning (ML) for Scientists and Engineers is designed to equip you with the knowledge you need to understand, train, design and machine learning algorithms, particularly deep neural networks, and even deploy them on the cloud.

You'll learn by programming machine learning algorithms from scratch in a hands-on manner using a one-of-a-kind cloud-based interactive computational textbook that will guide you, and check your progress, step-by-step. Using real-world datasets and datasets of your choosing, you will understand, and we will discuss, via computational discovery and critical reasoning, the strengths and limitations of the algorithms and how they can or cannot be overcome. You will understand how machine learning algorithms do what they claim to do so you can reproduce these while being able to reason about and spot wild, unsupported claims of their efficacy.

By the end of the course, you will be ready to harness the power of machine learning in your daily job and prototype, we hope, innovative new ML applications for your company with datasets you alone have access to.

It's ideal for folks who want to go deeper than a regular MOOC and want to learn by coding.

See <https://continuum.engin.umich.edu/programs/jumpstart-ml/> for a description – apply by Jan 8th, 2021 for cohort starting Feb 15th.

See <https://continuum.engin.umich.edu/programs/jumpstart-ml/testimonials-and-advice/> for testimonials from the pilot cohort.

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## 2.3. Call for CPHS 2022 Organization Proposals

Contributed by: Francoise Lamnabhi-Lagarrigue, [francoise.lamnabhi-lagarrigue@centralesupelec.fr](mailto:francoise.lamnabhi-lagarrigue@centralesupelec.fr)

The CPHS Steering Committee is calling for proposals for the organization of CPHS 2022, the 4th IFAC Workshop on Cyber-Physical & Human Systems (preferably just before 61th IEEE CDC, Cancun, Mexico, Dec 6-9, 2022).

The proposal should contain: Proposed dates (3 days); Proposed Venue; (Intended) Operating Committee Members: General Chair(s), International Program Chair(s), Invited Session Chair(s), Industry Chair(s), Editor, Publicity Chair(s), Local Arrangements Chair(s); Tentative Budget Plan; Scope of the Workshop.

The proposal should be send to [francoise.lamnabhi-lagarrigue@centralesupelec.fr](mailto:francoise.lamnabhi-lagarrigue@centralesupelec.fr) with deadline 21 February 2021.

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## 3 Books

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### 3.1. Synchronous Reinforcement Learning-Based Control for Cognitive Autonomy

Contributed by: Mike Casey, [mike.casey@nowpublishers.com](mailto:mike.casey@nowpublishers.com)

Title: Synchronous Reinforcement Learning-Based Control for Cognitive Autonomy

Authors: Kyriakos G. Vamvoudakis and Nick-Marios T. Kokolakis, GATech

Subscribers to Foundations and Trends in System and Control can access this monograph at:

<https://nowpublishers.com/article/Details/SYS-022>

Print copies can be purchased by list members for \$40 (List Price \$85) including regular shipping using the discount code: 175069

<https://nowpublishers.com/Order/BuyBook?isbn=978-1-68083-744-5>

Description: This monograph describes the use of principles of reinforcement learning (RL) to design feedback policies for continuous-time dynamical systems that combine features of adaptive control and optimal control. In a control engineering context, RL bridges the gap between traditional optimal control and adaptive control algorithms.

The authors give an insightful introduction to reinforcement learning techniques that can address various control problems. In this context, they give a detailed description of techniques such as Game-Theoretic Learning, Q-learning, and Intermittent RL; with each chapter providing a self-contained exposition of the topic and giving the reader suggestions for further reading. Finally, the authors demonstrate the application of the techniques in autonomous vehicles.

This review of a topic that is rapidly becoming ubiquitous in many engineering systems enables to reader dip in and out of the topic to quickly understand the essentials and provides the starting point for further research.

Table of contents

1. Introduction
  2. Optimal Regulation
  3. Game-Theoretic Learning
  4. Model-Free RL with Q-Learning
  5. Model-Based and Model-Free Intermittent RL
  6. Bounded Rationality and Non-Equilibrium RL in Games
  7. Applications to Autonomous Vehicles
  8. Concluding Remarks
- Acknowledgments
- References

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### 3.2. Learning-Based Control: A Tutorial and Some Recent Results

Contributed by: Mike Casey, [mike.casey@nowpublishers.com](mailto:mike.casey@nowpublishers.com)

Title: Learning-Based Control: A Tutorial and Some Recent Results

Authors: Zhong-Ping Jiang, Tao Bian and Weinan Gao

Suggested Citation: Zhong-Ping Jiang, Tao Bian and Weinan Gao (2020), "Learning-Based Control: A Tutorial and Some Recent Results", Foundations and Trends® in Systems and Control: Vol. 8: No. 3, pp 176-284. <http://dx.doi.org/10.1561/26000000023>

Subscribers to Foundations and Trends in System and Control can access this monograph at:  
<https://nowpublishers.com/article/Details/SYS-023>

Print copies can be purchased by list members for \$40 (List Price \$85) including regular shipping using the discount code: 175069

<https://nowpublishers.com/Order/BuyBook?isbn=978-1-68083-752-0>

Description: The recent success of Reinforcement Learning and related methods can be attributed to several key factors. First, it is driven by reward signals obtained through the interaction with the environment. Second, it is closely related to the human learning behavior. Third, it has a solid mathematical foundation. Nonetheless, conventional Reinforcement Learning theory exhibits some shortcomings particularly in a continuous environment or in considering the stability and robustness of the controlled process.

In this monograph, the authors build on Reinforcement Learning to present a learning-based approach for controlling dynamical systems from real-time data and review some major developments in this relatively young field. In doing so the authors develop a framework for learning-based control theory that shows how to learn directly suboptimal controllers from input-output data.

There are three main challenges on the development of learning-based control. First, there is a need to generalize existing recursive methods. Second, as a fundamental difference between learning-based control and Reinforcement Learning, stability and robustness are important issues that must be addressed for the safety-critical engineering systems such as self-driving cars. Third, data efficiency of Reinforcement Learning algorithms need be addressed for safety-critical engineering systems.

This monograph provides the reader with an accessible primer on a new direction in control theory still in its infancy, namely Learning-Based Control Theory, that is closely tied to the literature of safe Reinforcement Learning and Adaptive Dynamic Programming.

Table of contents

1. Introduction
2. Learning-Based Control of Continuous-Time Dynamical Systems
3. Learning-Based Control of Large-Scale Interconnected Systems
4. Learning-Based Output Regulation
5. Applications

6. Perspective and Future Work

Acknowledgments

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### 3.3. Atomic Decomposition via Polar Alignment

Contributed by: Mike Casey, [mike.casey@nowpublishers.com](mailto:mike.casey@nowpublishers.com)

Title: Atomic Decomposition via Polar Alignment: The Geometry of Structured Optimization

Authors: Zhenan Fan, Halyun Jeong, Yifan Sun and Michael P. Friedlander

Suggested Citation: Zhenan Fan, Halyun Jeong, Yifan Sun and Michael P. Friedlander (2020), "Atomic Decomposition via Polar Alignment: The Geometry of Structured Optimization", Foundations and Trends® in Optimization: Vol. 3: No. 4, pp 280-366. <http://dx.doi.org/10.1561/24000000028>

Subscribers to Foundations and Trends in Optimization can access this monograph at:

<https://nowpublishers.com/article/Details/SYS-023>

Print copies can be purchased by list members for \$40 including regular shipping using the discount code: 175069

<https://nowpublishers.com/Order/BuyBook?isbn=978-1-68083-742-1>

Description: The use of convex optimization in the fields of data science and engineering is becoming ubiquitous. But it has been recognized in the research community for more than a decade that significant efficiencies can be gained by acknowledging the latent structure in the solution itself, coupled with the overarching structure provided by convexity. Structured optimization proceeds along these lines by using a prescribed set of points, called atoms, from which to assemble an optimal solution. In effect, the atoms selected to participate in forming a solution decompose the model into simpler parts, which offers opportunities for algorithmic efficiency in solving the optimization problem. An atomic decomposition provides a description of the most informative features of a solution or a kind of generalized principal component analysis.

In this monograph, the authors describe the rich convex geometry that underlies atomic decomposition and demonstrate its use in practical examples. They expose the basic elements of this theory and its many connections to sparse and structured optimization. The authors have adopted a self-contained treatment and make a few modest assumptions that greatly simplify the derivations to make it accessible researchers who are not specialists in convex analysis.

Atomic Decomposition via Polar Alignment provides an introduction for all researchers and practitioners to a powerful optimization technique with many future applications throughout engineering and computer science.

Table of contents

1. Introduction

- 2. Atomic Decomposition
- 3. Alignment with Respect to General Convex Sets
- 4. Alignment with Respect to Atomic Sets
- 5. Alignment as Optimality
- 6. Alignment in Optimization Methods
- 7. Alignment in Convolution of Atomic Sets
- 8. Conclusions
- Acknowledgments
- References

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### 3.4. Robust Integration of Model-Based Fault Estimation and Control

Contributed by: Jianglin Lan, [Jianglin.Lan@glasgow.ac.uk](mailto:Jianglin.Lan@glasgow.ac.uk)

Robust Integration of Model-Based Fault Estimation and Fault-Tolerant Control by Jianglin Lan and Ron Patton

ISBN: 978-3-030-58759-8

December 2020, Springer

<https://www.springer.com/gp/book/9783030587598>

The book is a systematic examination of methods used to overcome the inevitable system uncertainties arising when the functions of fault estimation (FE) and fault-tolerant control (FTC) interact as they are employed together to compensate for system faults and maintain robustly acceptable system performance. It covers the important subject of robust integration of FE and FTC with the aim of guaranteeing closed-loop stability. The theory is supported by the extensive use of tutorial examples, including some MATLAB®-based material available from the Springer website and by industrial-applications-based material.

The text is structured into three parts:

- Part I examines the basic concepts of FE and FTC, providing extensive insight into the importance of and challenges involved in their integration;
- Part II describes five effective strategies for the integration of FE and FTC: sequential, iterative, simultaneous, adaptive decoupling, and robust decoupling;
- Part III begins to extend the strategies to nonlinear and large-scale systems and covers applications in the fields of renewable energy, robotics and networked systems.

The strategies presented are applicable to a broad range of control problems, because in the absence of faults the FE-based FTC naturally reverts to conventional observer-based control. The book is a useful resource for researchers and engineers working on fault-tolerant systems, and supplementary material for a graduate- or postgraduate-level course on fault diagnosis and FTC.

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## 4 Journals

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### 4.1. Evolutions Equations and Control Theory

Contributed by: Irena Lasiecka, [lasiecka@memphis.edu](mailto:lasiecka@memphis.edu)

Evolution Equations and Control Theory

March 2021, volume 10, number 1

<https://www.aims sciences.org/journal/A0000-0000>

1. Uniform attractors of 3D Navier-Stokes-Voigt equations with memory and singularly oscillating external forces

Cung The Anh, Dang Thi Phuong Thanh and Nguyen Duong Toan

2021, 10(1) : 1-23 doi: 10.3934/eect.2020039

2. Global existence for a class of Keller-Segel models with signal-dependent motility and general logistic term

Wenbin Lv and Qingyuan Wang

2021, 10(1) : 25-36 doi: 10.3934/eect.2020040

3. Infimal convolution and duality in convex optimal control problems with second order evolution differential inclusions

Elimhan N. Mahmudov

2021, 10(1) : 37-59 doi: 10.3934/eect.2020051

4. Boundary null-controllability of coupled parabolic systems with Robin conditions

Kuntal Bhandari and Franck Boyer

2021, 10(1) : 61-102 doi: 10.3934/eect.2020052

5. On a final value problem for a class of nonlinear hyperbolic equations with damping term

Nguyen Huu Can, Nguyen Huy Tuan, Donal O'Regan and Vo Van Au

2021, 10(1) : 103-127 doi: 10.3934/eect.2020053

6. Uniform boundary observability with Legendre-Galerkin formulations of the 1-D wave equation

Ludovick Gagnon and José M. Urquiza

2021, 10(1) : 129-153 doi: 10.3934/eect.2020054

7. Local wellposedness of quasilinear Maxwell equations with absorbing boundary conditions

Roland Schnaubelt and Martin Spitz

2021, 10(1) : 155-198 doi: 10.3934/eect.2020061

8. Approximate controllability for Navier-Stokes equations in 3D cylinders under Lions boundary conditions by an explicit saturating set

Duy Phan

2021, 10(1) : 199-227 doi: 10.3934/eect.2020062

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### 4.2. IET Control Theory & Applications

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IET Control Theory & Applications

Volume 14, Issue 18

<https://digital-library.theiet.org/content/journals/iet-cta/14/18>

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- Pengxu Li ; Panshuo Li ; Jing Zhao ; Bin Zhang, Non-fragile multi-objective linear parameter-varying controller design for vehicle lateral stability, DOI: 10.1049/iet-cta.2020.0514
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- Chao Huang ; Chen Lv ; Fazel Naghdy ; Haiping Du, Reference-free approach for mitigating human–machine conflicts in shared control of automated vehicles, DOI: 10.1049/iet-cta.2020.0289
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- Jonathan C. Mayo-Maldonado ; Guillermo Fernandez-Anaya ; Omar F. Ruiz-Martinez, Stability of conformable linear differential systems: a behavioural framework with applications in fractional-order control, DOI: 10.1049/iet-cta.2019.0930
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- Hong-Bing Zeng ; Hui-Chao Lin ; Yong He ; Chuan-Ke Zhang ; Kok-Lay Teo, Improved negativity condition for a quadratic function and its application to systems with time-varying delay, DOI: 10.1049/iet-cta.2019.1464

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#### **4.3. IMA Journal of Mathematical Control and Information**

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#### 4.4. International Journal of Applied Mathematics and Computer Science

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International Journal of Applied Mathematics and Computer Science (AMCS)

2020, Volume 30, Number 4 (December)

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Website: [www.amcs.uz.zgora.pl](http://www.amcs.uz.zgora.pl)

E-mail: [amcs@uz.zgora.pl](mailto:amcs@uz.zgora.pl)

Scope: modern control theory and practice; artificial intelligence methods and their applications; applied mathematics and mathematical optimisation techniques; mathematical methods in engineering, computer science, and biology

Indexation: ACM Digital Library, Applied Mechanics Reviews, Current Mathematical Publications (AMS), DBLP Computer Science Bibliography, EBSCO, Elsevier, Google Scholar, Inspec, Mathematical Reviews (MathSciNet), ProQuest, Clarivate Analytics (formerly Thomson Reuters), Zentralblatt Math, and others.

Impact Factor: 0.967 (2019) / 5-Year IF: 1.105 (2019)

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Automatica

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- Anil Kumar Pal, Shyam Kamal, Shyam Krishna Nagar, Bijan Bandyopadhyay, Leonid Fridman., Authors' Reply To: (CI 20-0229) Comments on Design of controllers with arbitrary convergence time [Automatica 108710]
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#### 4.6. Journal of Process Control

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#### 4.7. Systems & Control Letters

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#### 4.8. Journal of the Franklin Institute

Contributed by: Kay Tancock, [k.tancock@elsevier.com](mailto:k.tancock@elsevier.com)

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Contributed by: Kay Tancock, [k.tancock@elsevier.com](mailto:k.tancock@elsevier.com)

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- Oguzhan Kirtas, Yagiz Savas, Melih Bayraker, Faik Baskaya, Evren Samur., Design, implementation, and evaluation of a backstepping control algorithm for an active ankle-foot orthosis
- Paolo Di Lillo, Francesco Pierri, Gianluca Antonelli, Fabrizio Caccavale, Anibal Ollero., A framework for set-based kinematic control of multi-robot systems
- Chengda Lu, Min Wu, Luefeng Chen, Weihua Cao., An event-triggered approach to torsional vibration control of drill-string system using measurement-while-drilling data
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Contributed by: Kay Tancock, [k.tancock@elsevier.com](mailto:k.tancock@elsevier.com)

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## 4.13. Control Theory and Technology

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Control Theory and Technology

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#### 4.14. Asian Journal of Control

Contributed by: Li-Chen Fu, [lichen@ntu.edu.tw](mailto:lichen@ntu.edu.tw)

Asian Journal of Control

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2. Paper Title: Autonomous Smart Robot for Path Predicting and Finding in Maze Based On Fuzzy and Neuro-Fuzzy Approaches

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Authors: Jun-Min Wang and Aye Aye Than

29. Paper Title: Robust Detection of Intermittent Multiplicative Sensor Fault

Authors: Donghua Zhou, Junfeng Zhang, Panagiotis D Christofides, Xiao He, Yinghong Zhao and Zhihao Zhang

30. Paper Title: Fault Tolerant Control for A Class of Nonlinear System with Actuator Faults

Authors: Liling Ma, Lushan Zhou, Yuan Huang, Wang Junzheng and Dawei Shi

31. Paper Title: Fault Tolerant Control for Joint Structure in Pems High Speed Maglev Train

Authors: Zhiqiang Wang, Zhiqiang Long and Xiaolong Li

32. Paper Title: Observer-Based Compensation Control of Servo Systems with Backlash

Authors: Guofa Sun, Jingbo Zhao and Qiang Chen

33. Paper Title: Performance-Based Near-Optimal Vibration Control for Nonlinear Offshore Platforms with Delayed Input

Authors: Shi-Yuan Han, Xiao-Fang Zhong, Yue-Hui Chen, Jin Zhou and Gong-You Tang

34. Paper Title: Modelling and Simulation of Nabla Fractional Order Systems Using Vector Fitting Method

Authors: Yong Wang, Yiheng Wei, Jiachang Wang and Peter W Tse

35. Paper Title: Dynamic Analysis of a Novel Time-Lag Four-Dimensional Fractional-Order Financial System

Authors: Zhe Zhang, Jing Zhang, Yong Cheng, Feng Liu and Can Ding

36. Paper Title: Guaranteeing Performance for Uncertain Nonlinear Systems with Bounded State Constraint and Mismatching Condition

Authors: Jinquan Xu, Hao Fang, Ye-Hwa Chen, Hong Guo and Xiaofeng Ding

37. Paper Title: Study On Vehicle Active Suspension System Control Method Based On Homogeneous Domination Approach

Authors: Qing-Hua Meng, Chih-Chiang Chen, Pan Wang, Zong-Yao Sun and Bingji Li

#### **Brief Papers:**

1. Paper Title: Model Reduction Based On Limited-Time Interval Impulse Response Gramians

Authors: Deepak Kumar, Ahmad Jazlan and Victor Sreeram

2. Paper Title: Stabilization of Uncertain Fractional Order System with Time-Varying Delay Using BMI Approach

Authors: Hua-Cheng Zhou, Binbin He, Chun-Hai Kou and YangQuan Chen

3. Paper Title: Local Stabilization of Semilinear Parabolic System by Boundary Control

Authors: Yuanchao Si and Chengkang Xie

4. Paper Title: Node-To-Node Consensus of Multi-Agent Networks with Event-Triggered Control and Packet Losses

Authors: Aihua Hu, Ling Li and Haiyun Gao

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#### **4.15. Proceedings of the Institute of Applied Mathematics**

Contributed by: Fikret Aliev, [proceedings.IAM@gmail.com](mailto:proceedings.IAM@gmail.com)

Proceedings of the Institute of Applied Mathematics

Volume 9, Issue 2, 2020

#### **Papers:**

- Vladimir A. Emelichev, Yury V. Nikuln

Aspects of stability of multicriteria boolean linear programming problem with parametric optimality

- Mirzoev S.S., Rustamova L.A.

On solvability of a boundary-value problem for second order operator differential equations with variable coefficients

- Indula G., Liju Alex , Suleyman Ediz

The R index of some graphs

- Ramazanov A.B.

Error of gradient algorithm based on expansion of neighborhood of solution search for convex function of discrete argument

- Senychak V.M., Senychak V.V. , Nadzhafov M.M.

Accelerated algorithms of numerical solution of the dirichlet problem for laplace's (poisson's) equation

- Magarramov I, Aliev N.A., Jafarov A.G., Aliev F.A.

Method for finding periodic solutions of oscillatory systems with liquid dampe

- Sardarova I.Z., Mehdiyeva A.M., Qurbanov A.N.

Application of discrete averaging to increase the accuracy of multiple measurements

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#### 4.16. International Journal of Control, Automation, and Systems

Contributed by: Keum-Shik Hong, [journal@ijcas.com](mailto:journal@ijcas.com)

International Journal of Control, Automation, and Systems

Vol. 19, No. 1, January 2021

##### Papers:

- Evaluation of Force Estimation Method Based on Sliding Perturbation Observer for Dual-arm Robot System Hyun Hee Kim, Min Cheol Lee\*, Jin Ho Kyung, and Hyun Min Do pp.1-10
- Power Smoothing of a Variable-speed Wind Turbine Generator Dejian Yang, Yong Cheol Kang\*, Jung-Wook Park, Yong Il Lee, and Seung-Ho Song pp.11-19
- Fault-tolerant Control for Linear System Under Sensor Saturation Constraint Jun-Wei Zhu, Qiao-Qian Zhou, Jian-Ming Xu\*, and Jian-Wei Dong pp.20-28
- Virtual Model Reduction-based Control Strategy of Planar Three-link Underactuated Manipulator with Middle Passive Joint Zixin Huang, Xuzhi Lai\*, Pan Zhang, Yawu Wang, and Min Wu pp.29-39
- Track Compensation Algorithm using Free Space Information with Occupancy Grid Map Dong Sung Pae, Yoon Suk Jang, Sang Kyoo Park, and Myo Taeg Lim\* pp.40-53
- Leader-following Consensus for Second-order Nonlinear Multi-agent Systems Under Markovian Switching Topologies with Application to Ship Course-keeping Chuanrui Wang\*, Chuanxu Yan, and Zhenchong Liu pp.54-62
- Modeling and Design of High Performance Converters for Optimal Utilization of Interconnected Renewable Energy Resources to Micro Grid with GOLRS Controller Surendar V\* and U. S. Ragupathy pp.63-75
- Adaptive Backstepping Sliding Mode Control of Tractor-trailer System with Input Delay Based on RBF Neural Network Zengke Jin, Zhenying Liang\*, Xi Wang, and Mingwen Zheng pp.76-87
- Robust Mixed H<sub>2</sub>/H-∞ Control for an Uncertain Wireless Sensor Network Systems with Time Delay and Packet Loss Yuanbo Shi\*, Jianhui Wang, Xiaoke Fang, Yueyang Huang, and Shusheng Gu pp.88-100
- Robust-nonsmooth Kalman Filtering for Stochastic Sandwich Systems with Dead-zone Baoan Li, Yonghong Tan\*, Lei Zhou, and Ruili Dong\* pp.101-111
- Adaptive Fuzzy Finite-time Dynamic Surface Control for High-order Nonlinear System with Output Constraints Kewen Li\* and Yongming Li pp.112-123
- Leader-following Consensus of Multi-agent Systems via a Hybrid Protocol with Saturation Effects Xiang Hu, Zufan Zhang, Chuandong Li\*, and Liangliang Li pp.124-136
- Hybrid Observer Concept for Sensor Fusion of Sporadic Measurements for Underwater Navigation Jens E. Bremnes\*, Astrid H. Brodtkorb, and Asgeir J. Sørensen pp.137-144
- Unknown Input Reconstruction via Interval Observer and State and Unknown Input Compensation Feedback Controller Designs Fanglai Zhu\*, Wei Zhang, Jiancheng Zhang, and Shenghui Guo pp.145-157
- Event-triggered Control of Positive Systems With State Saturation Using Linear Programming Yu Shao, Junfeng Zhang\*, Laiyou Liu, and Xuanjin Deng pp.158-171
- Adaptive Neural Network Model-based Event-triggered Attitude Tracking Control for Spacecraft Hongyi Xie, Baolin Wu\*, and Weixing Liu pp.172-185
- Person Browser System Based on Named Entity Recognition for Broadcast News Interview Videos Sanghee Lee and Kanghyun Jo\* pp.186-199



- Fixed-time Group Consensus of Nonlinear Multi-agent Systems via Pinning Control Li-Li Hao, Xi-Sheng Zhan\*, Jie Wu, Tao Han, and Huai-Cheng Yan pp.200-208
- Constrained Model Predictive Contour Error Control for Feed Drive Systems with Uncertainties Yu Gao\*, Jun Huang, and Liang Chen pp.209-220
- Optimal LQI and PID Synthesis for Speed Control of Switched Reluctance Motor Using Metaheuristic Techniques Darielson A. Souza\*, Vinicius A. de Mesquita, Laurinda L. N. Reis, Wellington A. Silva, and Josias G. Batista pp.221-229
- H-Infinity Control with Multiple Packets Compensation Scheme for T-S Fuzzy Systems Subject to Cyber Attacks Xiuying Li\*, Baojun Wang, Lei Zhang, and Xianghua Ma pp.230-240
- Robust Static Output Feedback H<sub>2</sub>/H-Infinity Control Synthesis with Pole Placement Constraints: An LMI Approach Hadi Behrouz, Iman Mohammadzaman\*, and Ali Mohammadi pp.241-254
- Velocity-based Lateral Stability Control for Four-wheel Independently Actuated Electric Vehicles with Homogeneous Polynomial Approach Pengxu Li, Panshuo Li\*, Bin Zhang, Jing Zhao, and Baozhu Du pp.255-266
- Observer-based Adaptive Neural Network Output-feedback Control for Nonlinear Strict-feedback Discrete-time Systems Wenqi Xu, Xiaoping Liu\*, Huanqing Wang, and Yucheng Zhou pp.267-278
- Event-triggered Control of Discrete-time Switched Linear Systems with An Arbitrary Sampling Period Xiaozeng Xu, Yang Li\*, Can Liu, and Hongbin Zhang pp.279-288
- Correlation Analysis-based Stochastic Gradient and Least Squares Identification Methods for Errors-in-variables Systems Using the Multi-innovation Shujun Fan, Ling Xu, Feng Ding\*, Ahmed Alsaedi, and Tasawar Hayat pp.289-300
- Finite Time Fractional-order Adaptive Backstepping Fault Tolerant Control of Robotic Manipulator Zee-shan Anjum and Yu Guo\* pp.301-310
- A Hierarchical Peer-to-Peer Energy Transaction Model Considering Prosumer's Green Energy Preference Dae-hyun Park, Yong-Gi Park, Jae-Hyung Roh, Kwang Y. Lee, and Jong-Bae Park\* pp.311-317
- Interval Estimation for Discrete Sequential Systems Under Round-robin Protocol Xin Li, Guoliang Wei\*, and Derui Ding pp.318-328
- Further Study on Networked Control Systems with Unreliable Communication Channels Xiao Lu, Na Wang, Qingyuan Qi, Xiao Liang\*, and Haixia Wang pp.329-338
- The Generalized Modified Hermitian and Skew-Hermitian Splitting Method for the Generalized Lyapunov Equation Juang Zhang\* and Huihui Kang pp.339-349
- Fault Detection for a Class of Closed-loop Hypersonic Vehicle System via Hypothesis Test Method Xunhong Lv, Yifan Fang, Zehui Mao, Bin Jiang\*, and Ruiyun Qi pp.350-362
- Innovative Analysis for Parameter Estimation Quality Marina B. A. Souza\*, Leonardo de Mello Honorio, and Edimar Jose de Oliveira pp.363-371
- Neural Approximation-based Model Predictive Tracking Control of Nonholonomic Wheel-legged Robots Jiehao Li, Junzheng Wang, Shoukun Wang, Wen Qi, Longbin Zhang, Yingbai Hu, and Hang Su\* pp.372-381
- Event-triggered Extended Dissipative Control for Networked Singular Systems Meiyu Li, Jianwei Xia\*, Junsheng Zhao, Huasheng Zhang, and Hao Shen pp.382-391
- Optimal PID Controller Autotuning Design for MIMO Nonlinear Systems Based on the Adaptive SLP Algorithm Jirapun Pongfai, Chrissanthi Angeli, Peng Shi, Xiaojie Su, and Wudhichai Assawinchaichote\* pp.392-403
- Experimental Verification of a Drift Controller for Autonomous Vehicle Tracking: A Circular Trajectory Using LQR Method Mincheol Park and Yeonsik Kang\* pp.404-416

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- Finite-time Synchronization of a Class of Coupled Memristor-based Recurrent Neural Networks: Static State Control and Dynamic Control Approach Chao Yang, Yicheng Liu\*, Fangmin Li, and Yangfan Li pp.426-438
- Reduced-order Generalized Proportional Integral Observer Based Continuous Dynamic Sliding Mode Control for Magnetic Levitation System with Time-varying Disturbances Junxiao Wang\*, Lei Zhao, and Li Yu pp.439-448
- Multiplex Centrality Measurements Applied to Islanded Microgrids Vladimir Toro\*, Eduardo Mojica-Nava, and Naly Rakoto-Ravalontsalama pp.449-458
- The Enhancement of Handling Stability for Driver-combined-vehicle Systems Through Adaptive Steering Controller Jing-Hong Li\*, Qiang Wang, Gao-Hong Yu, and Chuan-Yu Wu pp.459-470
- On Dimensions of Linear Discrete Dimension-unbounded Systems Jun-e Feng, Biao Wang\*, and Yongyuan Yu pp.471-477
- Current Estimation and Path Following for an Autonomous Underwater Vehicle (AUV) by Using a High-gain Observer Based on an AUV Dynamic Model Eonjoo Kim, Shuangshuang Fan\*, Neil Bose, and Hung Nguyen pp.478-490
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- Real-time Safety Monitoring Vision System for Linemen in Buckets Using Spatio-temporal Inference Zahid Ali and Unsang Park\* pp.505-520
- Time-optimal and Smooth Trajectory Planning for Robot Manipulators Tie Zhang\*, Meihui Zhang, and Yanbiao Zou pp.521-531
- Disc-type Underwater Glider Modeling and Analysis for Omnidirectional and Steering Motion Characteristics Han Zhou, Tianlin Wang\*, Li Sun, and Xiang Jin pp.532-547
- A Generalized Vision-based Stiffness Controller for Robot Manipulators with Bounded Inputs Carlos Vidrios-Serrano, Marco Mendoza\*, Isela Bonilla, and Berenice Maldonado-Fregoso pp.548-561
- A New Geometric Subproblem to Extend Solvability of Inverse Kinematics Based on Screw Theory for 6R Robot Manipulators Josuet Leoro\*, Tesheng Hsiao, and Carlos Betancourt pp.562-573

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#### 4.17. CFP: Nonlinear Analysis: Hybrid Systems

Contributed by: Kai Cai, [kai.cai@eng.osaka-cu.ac.jp](mailto:kai.cai@eng.osaka-cu.ac.jp)

Special Issue: "Security, Privacy and Safety of Cyber-Physical Systems"

Guest Editors: Kai Cai, Osaka City University ([kai.cai@eng.osaka-cu.ac.jp](mailto:kai.cai@eng.osaka-cu.ac.jp))

Maria Prandini, Politecnico di Milano ([prandini@elet.polimi.it](mailto:prandini@elet.polimi.it))

Xiang Yin, Shanghai Jiao Tong University ([yinxiang@sjtu.edu.cn](mailto:yinxiang@sjtu.edu.cn))

Majid Zamani, University of Colorado Boulder ([Majid.Zamani@colorado.edu](mailto:Majid.Zamani@colorado.edu))

Cyber-physical systems are engineered systems that are built from and depend upon the synergy of computational and physical components. They are pervasive in today's technological society. Cyber-physical systems usually involve complex interactions of continuous dynamics with discrete logic, referred to as

“hybrid” behavior. The development of controller design and verification algorithms for such complex systems are crucial and challenging tasks, due in particular to the theoretical difficulties of analyzing hybrid behavior and to the computational challenges associated with the synthesis of hybrid controllers.

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

The main objective of this special issue to gather recently developed novel approaches devoted to analysis and enforcement of security, privacy and safety of cyber-physical systems using formal techniques. We seek submissions including but not limited to the following topics:

- Security and privacy analysis of cyber-physical systems, including opacity, differential privacy, noninterference and other related notions
- Fault diagnosis, intrusion detection, and attack mitigation of cyber-physical systems
- Supervisory control for safety of discrete-event systems
- Formal methods and reactive synthesis for safety of cyber-physical systems
- Data-driven verification and synthesis of cyber-physical systems
- Distributed approaches for large scale cyber-physical systems and hybrid systems
- Algorithms and tools for verification and synthesis of safety-critical systems
- Applications in security and/or safety of manufacturing systems, transportation systems, energy systems, robotic networks, telecommunications, and computer networks.

Submission Information:

- Deadline: January 31, 2021
- Website: <https://www.editorialmanager.com/NAHS/default.asp>
- Article type (identifier of this special issue): VSI: Security

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## 5 Conferences and Workshops

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### 5.1. CDC 2020 Workshop: Control and Learning for Emerging Mobility Systems

Contributed by: Andreas A. Malikopoulos, [andreas@udel.edu](mailto:andreas@udel.edu)

Workshop in CDC on “Control, Optimization, and Learning Methods for Emerging Mobility Systems?”

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

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

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### 5.2. International Conference on Unmanned Aircraft Systems, Greece

Contributed by: Youmin Zhang, [Youmin.Zhang@concordia.ca](mailto:Youmin.Zhang@concordia.ca)

Call-for-Papers: 2021 International Conference on Unmanned Aircraft Systems (ICUAS’21), Athens, Greece, June 15-18, 2021

[www.uasconferences.com/2021\\_icuas/](http://www.uasconferences.com/2021_icuas/)

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

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

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

Conference topics include (but not limited to):

- Airspace Control - Integration - See/Sense-Detect-and-Avoid Systems

- Airspace Management - Interoperability - Security
- Airworthiness - Levels of Safety - Sensor Fusion
- Autonomy- Manned/Unmanned Aviation - Smart Sensors
- Biologically Inspired UAS - Micro- and Mini- UAS - Standardization
- Certification - Networked UAS - Technology Challenges
- Control Architectures - Payloads- Training
- Energy Efficient UAS - Path Planning and Navigation - UAS Applications
- Environmental Issues - Regulations - UAS Communications
- Fail-Safe Systems - Reliability of UAS - UAS Testbeds
- Frequency Management - Risk Analysis - UAS Transportation Management (UTM)

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

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

February 15, 2021: Full Papers/ Invited Papers/Tutorial Proposals Due

April 15, 2021: Acceptance/Rejection Notification

May 10, 2021: Upload Final, Camera Ready Papers; Early Registration Deadline

#### PAPER SUBMISSION

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

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

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

Welcome and look forward to receiving your contributions and attendance to the ICUAS'21! For detailed information please see [www.uasconferences.com](http://www.uasconferences.com).

#### ICUAS ASSOCIATION LIAISON CHAIR

Kimon P. Valavanis, Univ. of Denver, [kimon.valavanis@du.edu](mailto:kimon.valavanis@du.edu)

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## 6 Positions

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### 6.1. PhD: The Chinese University of Hong Kong, Shenzhen, China

Contributed by: Shi Pu, [pushi@cuhk.edu.cn](mailto:pushi@cuhk.edu.cn)

We have a fully funded PhD position in the Multi-Agent Optimization and Learning (MALO) Lab led by Prof. Shi Pu at The Chinese University of Hong Kong, Shenzhen. Research of MALO mainly lies in distributed optimization, learning and control within networked multi-agent systems.

We strongly encourage self-motivated students with solid mathematical background and research interests in networks, optimization, machine learning and distributed algorithms to apply. More information can be found on <https://myweb.cuhk.edu.cn/pushi>. Interested applicants should submit their CV and unofficial transcripts to Prof. Shi Pu ([pushi@cuhk.edu.cn](mailto:pushi@cuhk.edu.cn)).

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### 6.2. PhD: University of Delaware, USA

Contributed by: Andreas A. Malikopoulos, [andreas@udel.edu](mailto:andreas@udel.edu)

Several PhD positions are available at the Information and Decision Science Laboratory (<http://sites.udel.edu/ids-lab/>) in the department of Mechanical Engineering at the University of Delaware. The ideal candidates should have a strong interest in control theory, and in particular, in analysis, optimization, and control of cyber-physical systems; mechanism design and game theory; and learning in complex systems.

Specific topics includes:

- Learning and control in cyber-physical systems
- Decentralized control for emerging mobility systems (e.g., connected and automated vehicles, shared mobility) in smart cities
- Impact of social networks in opinion formation

We are seeking exceptional individuals who have demonstrated dedication to scholarship, creativity, and leadership. Here is a link for information about the application process: <https://grad.udel.edu/apply/>

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### 6.3. PhD: City Univ. of Hong Kong & Southern Univ. of Science & Tech., China

Contributed by: Ehsan Nekouei, [enekouei@cityu.edu.hk](mailto:enekouei@cityu.edu.hk)

A Ph.D. position in Robotics

Description: We are seeking to hire an international Ph.D. student in the area of robotics with an emphasis on design, manufacturing, control, and mechanics.

The successful candidate must hold an undergraduate or master's degree in either mechanical engineering or control engineering.





ESR6: The evolution of cooperation in populations involving multi-player games and time delays (University of Warsaw, Institute of Applied Mathematics and Mechanics, Poland). Supervisors: Prof. Jacek Miekisz (miekisz@mimuw.edu.pl) and Prof. Marek Bodnar

ESR7: Information theoretic aspects of modularity, self-similarity, and stability in multiplayer games on adaptive networks (Medical University of Vienna, Section for Science of Complex Systems, Austria). Supervisors: Dr. Rudolf Hanel (rudolf.hanel@meduniwien.ac.at) and Dr. Peter Klimek

ESR8: Theory of Stackelberg evolutionary games for cancer treatment. (Maastricht University, Department of Data Science & Knowledge Engineering, Dynamic Game Theory, The Netherlands). Supervisors: Dr. Kateřina Staňková (k.stankova@maastrichtuniversity.nl) and Dr. Rachel Cavill

ESR9: Impact of different resistance mechanisms on the outcomes of cancer treatment game (Queen Mary University of London, School of Mathematical Sciences, United Kingdom). Supervisors: Dr. Weini Huang (weini.huang@qmul.ac.uk) and Dr. Dudley Stark

ESR10: Evolutionary therapy in ovarian cancer (Queen Mary University of London, Barts Cancer Institute, United Kingdom). Supervisors: Dr. Benjamin Werner (b.werner@qmul.ac.uk) and Prof. Trevor Graham

ESR11: Data-driven support to understanding of complex dynamical physical phenomena, such as epidemics (University of Torino, Department of Computer Science, Italy). Supervisors: Prof. Maria Luisa Sapino (mlsapino@di.unito.it) and Prof. Matteo Sereno

ESR12: Models of evolution in network-structured populations (University of Liverpool, Department of Mathematical Sciences, United Kingdom). Supervisors: Dr. Kieran Sharkey (K.J.Sharkey@liverpool.ac.uk) and Dr. Kate Baker

ESR13: Waning of immunity due to pathogen evolution (University of Szeged, Bolyai Institute, Hungary). Supervisors: Dr. Gergely Röst (rost@math.u-szeged.hu) and Dr. Tibor Krisztin

ESR14: Models of eco-evolutionary dynamics of population interaction networks (University of South Bohemia, Department of Mathematics, Czech Republic). Supervisors: Prof. Vlastimil Krivan (vlastimil.krivan@gmail.com) and Dr. Luděk Berec

ESR15: Node embedding for epidemic spreading processes on temporal networks (ISI Foundation, Department of Digital Epidemiology, Italy). Supervisors: Dr. Daniela Paolotti (daniela.paolotti@isi.it), Dr. Michele Tizzoni and Prof. Ciro Cattuto

For more details and how to apply visit the EvoGamesPlus webpage:

<https://www.maastrichtuniversity.nl/evogamesplus>

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### 6.5. PhD: Virginia Tech, USA

Contributed by: Ming Jin, [jinming@vt.edu](mailto:jinming@vt.edu)

PhD: Position at Virginia Tech - Machine Learning and Control

The laboratory of research in optimization, learning, and energy (ROLE), led by Dr. Ming Jin in the Bradley Department of Electrical and Computer Engineering at Virginia Tech has 1 Ph.D. position for fall 2021.

The goal of ROLE lab is to enable trustworthy AI for safety-critical systems like power grid and human habitat. The scope of the student work is to develop fundamental theories in the areas of optimization, control, and machine learning, with emphasis on various aspects of trust, including security, reliability, explainability, and scalability.

If your interests are compatible with ours, please feel free to send me your CV, transcripts, and one or two sample papers (if any). Students with strong mathematical backgrounds, including the areas of optimization, control theory, machine learning, and statistics are preferred.

Email: [jinming@vt.edu](mailto:jinming@vt.edu)

Homepage: <http://www.jinming.tech>

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### 6.6. PhD: Maynooth University, Ireland

Contributed by: John Ringwood, [john.ringwood@mu.ie](mailto:john.ringwood@mu.ie)

PhD position (mechatronics/control) in Centre for Ocean Energy Research, Maynooth University, Ireland

The Centre for Ocean Energy Research (COER) at Maynooth University, Ireland has a further opportunity for well-qualified applicants interested in undertaking a funded PhD.

The successful candidate will be involved in a PhD project to develop a small-scale wave powered data buoy. The primary focus of this project is the development of a reliable, efficient and cost-effective power source for marine sensing, based on data buoy movement due to incident waves. Secondary aspects include the integration of the sensor and data transmission systems within the framework of a holistic system that achieves optimal design compromise between power provision, usage, data transmission rates and stability as a sensor platform.

The project will include hydrodynamic modelling, PTO modelling, control system design, optimisation sensor design, data transmission system design, simulation and experimental testing, information dissemination and public engagement. This ambitious project will involve collaboration with Dundalk IT (IRL), Techworks Marine (IRL), Monterey Bay Aquarium Research Institute (USA), and Resolute Marine (USA). 2 to 3 months of every year will be spent in PLOCAN (Oceanic Platform of the Canary Islands, Spain).

Funding has been provided by the Marine Institute's Eoin Sweeney Scholarship. In addition to a tax-free stipend of €18,000, PhD fees are fully covered. The project also provides generous funding for equipment,

materials and travel (conferences, courses, secondment, etc) and is tenable for a 4-year structured PhD.

Applicants should be well qualified to bachelor's or master's degree level in one of the following areas: mechanical/mechatronic engineering, electronic engineering, control engineering. Exceptional students in applied maths or hydrodynamics may be considered.

The project will be supervised by Prof. John Ringwood, who was the recipient of the 2019 Maynooth University Research Supervision Award. Further information on COER is available at: <http://www.eeng.nuim.ie/coer/>.

To apply, send a full CV, along with the contact details of 3 referees, to [coer@mu.ie](mailto:coer@mu.ie). Informal enquiries may be made to Carrie Anne Barry ([CarrieAnne.Barry@mu.ie](mailto:CarrieAnne.Barry@mu.ie)).

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#### **6.7. PhD: University of Warwick, UK**

Contributed by: Xiaowei Zhao, [xiaowei.zhao@warwick.ac.uk](mailto:xiaowei.zhao@warwick.ac.uk)

Marie Sklodowska-Curie PhD student (Machine learning and wind farm control)

Salary: £36,299.34 per annum, plus £5,501.64 mobility allowance per annum. There may also be a Family allowance if eligible. Full time, fixed term contracts for up to 36 months and to start as soon as possible.

Closing date: 13 Jan 2021

The School of Engineering of the University of Warwick in the UK is looking to appoint a full-time Marie Sklodowska-Curie Early Stage Researcher to undertake independent and collaborative research in modelling and control of wind farm and its grid integration based on machine learning and intelligent control technologies.

The successful candidate will work on the €4.3 million WinGrid (Wind farm - Grid interactions: exploration and development) project which is sponsored by the H2020-MSCA-ITN Program. The WinGrid consortium aims to investigate future power system integration issues associated with large-scale deployment of wind generation, focussing on the modelling and control aspects of wind turbine design, and the system stability issues and supervisory structures required for robust implementation. WinGrid comprises an expert group of ten academics from 8 beneficiary organisations including 7 leading universities and one large company DNV GL across 6 countries. It also has 8 internationally renowned industrial partners (e.g. ABB, Vestas). The WinGrid consortium will provide the ESRs with extensive technical and interpersonal skills training. Each ESR will have internship opportunities in at least one of the industry partners and will visit at least one of the academic collaborators.

It is essential that you have a good honours degree and a Master's degree (or equivalent) in the fields of in the fields of Control Engineering, Machine Learning, Data science, Mathematics, Electrical Engineering or Mechanical Engineering. You will have a developing research profile with the ability to publish high quality research output.

You will have excellent IT skills including demonstrable ability to use IT to write technical research papers and presentations. You are also required to be an excellent communicator with strong communication skills, and be able to evidence excellent interpersonal skills with relevant experience of working independently and as part of a team.

The successful candidate will have experience and/or knowledge in at least one of the following areas: Intelligent control, data-driven control, optimal control, data science, machine learning, wind energy, and optimization.

You will be required to meet Marie Curie Early Stage Researcher eligibility criteria. As a condition of the project at the time of recruitment the researcher shall NOT have resided or carried out his/her main activity in the UK for more than 12 months in the 3 years immediately prior to his/her recruitment under the project, and you must not have been awarded a doctoral degree. Applicants must be in the first four years of their research career (e.g. working as a researcher after obtaining your Master's degree) and you will be registered, or demonstrate a willingness to register, for a PhD degree at the University of Warwick.

Funding is for up to 36 months at £36,229.34 per annum plus £5,501.64 per annum mobility allowance and will be paid in GBP, subject to exchange rate and tax, national insurance & pension deductions for both employer & employee. There may also be a Family allowance if eligible. Details of the exchange rate arrangements will be provided in any offer of employment made.

The post is for a fixed term of up to 36 months to start as soon as possible. For informal discussion of this opportunity, please contact Prof. Xiaowei Zhao at [Xiaowei.zhao@warwick.ac.uk](mailto:Xiaowei.zhao@warwick.ac.uk). Closing date: 13 Jan 2021

To apply, visit this page: <https://bit.ly/2Kjx9In>

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**6.8. PhD: University of Kentucky, USA**  
Contributed by: [xu.jin@uky.edu](mailto:xu.jin@uky.edu)

Ph.D. Positions in intelligent control (Mechanical Engineering) at the University of Kentucky

Ph.D. openings are available in the Department of Mechanical Engineering at the University of Kentucky, Lexington, KY, in Dr. Xu Jin's group on the topics of intelligent control. We look for excellent students in one or more of the following areas:

1. Adaptive control
2. Iterative learning control
3. Nonlinear systems and control
4. Vision-based control
5. Ground vehicles
6. Quadrotors
7. Robot manipulation systems
8. Multiagent/interconnected/networked/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 ALREADY HAVE, or will soon have the GRE and TOEFL test scores (if applicable) meeting the departmental minimum requirement.

How to apply: Applications should be emailed to Dr. Xu Jin at [xu.jin@uky.edu](mailto:xu.jin@uky.edu) as soon as possible. Please include a full CV (including GRE and TOEFL scores if applicable), 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 (Dr. Xu Jin) in the application package. Visiting Ph.D. students and scholars are also very welcomed for self-funded research visit for 6-24 months.

\* 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, including UAV, ground robot, and air table satellite testing facilities. The city of Lexington is ranked #3 Best City to Raise a Family, #4 City with Best Tech Career Potential, #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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#### **6.9. PhD: Arizona State University, USA**

Contributed by: Daniel E. Rivera, [daniel.rivera@asu.edu](mailto:daniel.rivera@asu.edu)

Open PhD positions at Arizona State University

A number of PhD assistantships are available in the Control Systems Engineering Laboratory at Arizona State University for research in novel uses of system identification, model predictive control, and ancillary systems methodologies applied to modeling and optimization of mHealth interventions for physical activity. These are funded from three US National Institute of Health (NIH) grants: U01CA229445 "Operationalizing behavioral theory for mHealth: dynamics, context, and personalization," R01LM013107 "SCH: Control systems engineering for counteracting notification fatigue: an examination of health behavior change," and R01CA244777 "Optimizing Individualized and Adaptive mHealth interventions via control systems engineering methods."

Candidates need to be admitted to the PhD programs at Arizona State in either chemical or electrical engineering, and will be working in a highly interdisciplinary environment involving psychologists, behavioral scientists, engineers, and computer scientists.

Inquiries (which should be accompanied by statements of interest and a summary of the candidate's background in control systems and ancillary fields) should be addressed to Professor Daniel E. Rivera, Program Director, Control Systems Engineering Laboratory, at [daniel.rivera@asu.edu](mailto:daniel.rivera@asu.edu).

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### 6.10. PhD: University of Groningen, The Netherlands

Contributed by: Claudio De Persis, [c.de.persis@rug.nl](mailto:c.de.persis@rug.nl)

PhD Position Learning and Control - University of Groningen

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

We are looking for strong candidates willing to develop the theoretical foundations and the key-enabling technologies for the integration of data-driven control-oriented learning approaches and model-based engineering methods. The results will be tested on real-world problems proposed by industrial partners. Interested candidates are invited to send a complete application to [c.de.persis@rug.nl](mailto:c.de.persis@rug.nl), [n.monshizadeh@rug.nl](mailto:n.monshizadeh@rug.nl) and [p.tesi@rug.nl](mailto:p.tesi@rug.nl), including the following items in a single PDF file:

1. A Curriculum Vitae with contact information of two academic references.
2. A statement of motivation/purpose, listing down relevant research experience (max 1 page).
3. Grade transcripts of obtained degrees/diplomas in English.

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

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

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### 6.11. PhD/Postdoc: Technical University of Kaiserslautern, Germany

Contributed by: Naim Bajcinca, [mec-apps@mv.uni-kl.de](mailto:mec-apps@mv.uni-kl.de)

One Ph.D./Postdoc position at the Chair of Mechatronics, Technical University of Kaiserslautern, Germany

The Chair of Mechatronics at the University of Kaiserslautern in Germany has a vacancy for one Ph.D./Postdoc Position on model predictive control (MPC).

**Project Description:** The underlying position is about developing distributed and/or hierarchical MPC-algorithms for large-scale systems. A particular task of interest refers to optimization and scheduling in a hybrid system setting. In addition to theoretical work, real-time implementation in applications of smart grids, energy systems, cooperative autonomous vehicles, cooperative robotics, and production systems are of interest. The projects are funded by various federal ministries in Germany. The successful candidate will cooperate in a group with several researchers and industrial partners.

**Requirements:** Applicants should have completed their studies in Control Engineering or Mathematics with excellent average grades and have demonstrated abstract and mathematical thinking. Experience in optimization theory and control is requested. The completion of a doctoral thesis is an expected requirement. PostDocs interested in affiliation for at least three years are welcomed. Short-time stays are not supported.

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

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

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

Application and More Information: Applications must include the following elements (as a single PDF file):

- Cover letter with a brief description of why you want to pursue research studies, about what your academic interests are and how they relate to your previous studies and future goals
- CV including your relevant professional experience and knowledge
- Copies of diplomas and grades from previous university studies

Send an email with the required documents to the address: [mec-apps@mv.uni-kl.de](mailto:mec-apps@mv.uni-kl.de)

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## **6.12. PhD/Postdoc: Technical University of Kaiserslautern, Germany**

Contributed by: Naim Bajcinca, [mec-apps@mv.uni-kl.de](mailto:mec-apps@mv.uni-kl.de)

One Ph.D./Postdoc position at the Chair of Mechatronics, Technical University of Kaiserslautern, Germany

The chair of Mechatronics at the University of Kaiserslautern in Germany has a vacancy for one Ph.D./Postdoc position in control and stability of partial differential equations (PDEs) and infinite-dimensional systems.

Project Description: The underlying position offers a wide range of theoretical research opportunities, including optimization-based control, in particular, model-predictive control and stability of dynamical systems described by partial differential equations (PDEs). Optionally, the operator formulation of infinite-dimensional systems can also be considered. In addition to theoretical work, application in production systems, energy systems, chemical engineering, and systems biology is possible.

Requirements: Applicants should have completed their studies in Mathematics or Control Engineering with excellent average grades and have demonstrated excellent abstract and mathematical thinking. Experience in control and optimization theory is advantageous. The completion of a doctoral thesis is an expected requirement. Postdocs interested in affiliation for at least three years are welcomed. Short-time stays are not supported.

Conditions of Employment: The position will start on May 1, 2021, and run for at least three years. Candidates in the process of obtaining their M.Sc. degree shall also be considered provided that they complete

all the degree requirements no later than the agreed starting date.

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

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

Application and More Information: Applications must include the following elements (as a single PDF file):

- Cover letter with a brief description of why you want to pursue research studies, about what your academic interests are and how they relate to your previous studies and future goals
- CV including your relevant professional experience and knowledge
- Copies of diplomas and grades from previous university studies

Send an email with the required documents to the address: [mec-apps@mv.uni-kl.de](mailto:mec-apps@mv.uni-kl.de)

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### **6.13. Postdoc: The Chinese University of Hong Kong, Shenzhen, China**

Contributed by: Shi Pu, [pushi@cuhk.edu.cn](mailto:pushi@cuhk.edu.cn)

Postdoc: The Chinese University of Hong Kong, Shenzhen, China

We have a postdoc position in the Multi-Agent Optimization and Learning (MALO) Lab led by Prof. Shi Pu at The Chinese University of Hong Kong, Shenzhen. Research of MALO mainly lies in distributed optimization, learning and control within networked multi-agent systems. We strongly encourage candidates with solid mathematical background and research interests in networks, optimization, machine learning and distributed algorithms to apply. Salary is highly competitive (400k RMB per year).

Interested applicants should submit their CV and representative publications to Prof. Shi Pu ([pushi@cuhk.edu.cn](mailto:pushi@cuhk.edu.cn)).

#### 1. Requirements

- 1) Excellent in character and scholarship, passionate about education and scientific research, healthy, under the age of 35.
- 2) Doctoral degree certificate for a period of less than 3 years (degree certification by Ministry of Education of People's Republic of China is required for overseas degree).
- 3) Full-time
- 4) The postdoc period is generally two years (24 months). You can apply for outbound in advance within three months.
- 5) Employment separation certificate is required for directional doctor, on-the-job personnel and service-man to engage in postdoctoral research.

#### 2. Salary & Benefits



1) Salary will be competitive, commensurate with qualifications and experience. Appointments will be made under the establishment of CUHK-SZ and statutory benefits will be provided according to the prevailing labor laws applicable in the PRC. The appointee will be based at the University campus in Shenzhen, PRC.

2) Guaranteed postdoc fellowship bonus from Shenzhen Municipal government and Longgang District government with an amount of 300,000 RMB per year (tax free) for two years.

3) Qualified candidates will be encouraged to apply the followed funding support. (Please be subject to the government official latest version)

- China Postdoctoral Science Fund (First Prize Awardee with 80,000RMB, Second Prize Awardee with 50,000RMB)
- National Science Foundation of China.
- Guangdong Oversea Postdoctoral Fellowship: The awardee will get extra bonus from Guangdong Province of 300,000 RMB per year for two years (before tax).
- Post-doctors, their spouses and children are allowed to register residence in Shenzhen.

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#### **6.14. Postdoc: Concordia University, Canada**

Contributed by: Wenfang Xie, [wfxie@encs.concordia.ca](mailto:wfxie@encs.concordia.ca)

Horizon Postdoctoral Fellowship–Concordia University

We are seeking a highly qualified Postdoctoral Research Fellow in AI, Robotic Manufacturing System Design and Control, Data fusion of optical coordinate measurement machines (CMM) and 3D scanner

Application deadline date: March 01, 2021

The Research Fellow has the opportunity to:

- Conduct independent research in an area AI, Visual Servoing, Automated Fiber Placement Machine Design and Control
- Devote full-time effort to research and publication
- Access the excellent and often unique Concordia University CONCOM research facilities
- Collaborate with leading scientists and engineers

The salary: \$50,000 plus benefits for two years.

Please submit your C.V. to Professor Wen-Fang Xie at [wfxie@encs.concordia.ca](mailto:wfxie@encs.concordia.ca) . For detailed information, please visit: Dr. Xie ([concordia.ca](http://concordia.ca))

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#### **6.15. Postdoc: Czech Technical University in Prague, Czech Republic**

Contributed by: Giuseppe Silano, [giuseppe.silano@fel.cvut.cz](mailto:giuseppe.silano@fel.cvut.cz)

Postdoc, Associate and Tenure Positions in Aerial Robotics (Swarms, GNSS-denied flying, MRS systems, DARPA) at Multi-robot Systems Group - Czech Technical University in Prague

**Job Description: Three Positions in Aerial and Swarm Robotics:** The researcher will lead a team of PhD and Master students and work on single and/or multi-robot systems to enable the deployment of fleets of UAVs in real-world environments. The work can be in any relevant field, including motion and path planning, control, coordination, flocking, sensors and sensor fusion, computer vision, obstacle avoidance, high level planning, and scheduling. The researcher will advise and co-advise a team of (usually a group of 3-6 students) to support the candidates' research intentions. Additionally, a team of HW engineers at MRS group at Czech Technical University in Prague will support research by maintaining 30+ swarm aerial platforms dedicated to deployment in demanding outdoor environments with obstacles. Although the positions are targeted for fundamental research of the candidate (continuation in prior research is preferred), involvement of the researcher with the application-oriented projects of the group is also welcome as we believe that robotics should be motivated by applications.

**Work Benefits:** The positions are fully funded with social benefits and an offered salary competitive to most research positions in European countries, enabling a comfortable life in the historical centre of Prague. Our group provides a friendly working atmosphere with organized team-building events, such as ski trips, hikes, barbecue parties, and mainly our outdoor experimental camps in the countryside (3-4 camps per year), where we enjoy the opportunity of unlimited outdoor flying in various environments (field, forest, lake, urban, etc.).

**About Our Group:** Multi-robot Systems (MRS) Group ([mrs.felk.cvut.cz](http://mrs.felk.cvut.cz)) at Czech Technical University in Prague integrates various research disciplines required for the design, implementation, experimental evaluation, and application of complex robotic systems in real-world conditions. Research streams followed by MRS Group members include motion and trajectory planning, locomotion generation, control, communication, coordination, image processing, and stabilization of groups of ground and aerial robots. From the application point of view, MRS deals with environment monitoring by swarms of micro aerial vehicles, self-stabilized convoys of ground and aerial robots, search & rescue robotics, monitoring and mapping of historical buildings by aerial robots, and aerial manipulation, among others. We are proud of our successes at international robotic competitions, such as the MBZIRC and DARPA.

For more projects and results see: <http://mrs.felk.cvut.cz>

**Required Skills:** For all positions:

- A PhD degree in computer engineering, artificial intelligence, computer science, robotics, swarms, or related fields
- Excellent track record (publications in high-IF conferences and journals)
- Excellent written and spoken English skills- strong experience with publication activities
- Experience with real UAV systems is an advantage, but not required (mainly in the case of swarm positions)
- Passion for robotics, mathematics, programming, and abstract thinking
- Ability to develop and implement complex algorithms efficiently
- Experience with ROS, Gazebo, and Git is desirable

**For Associate and Tenure positions:**

- A postdoc or industrial experience in an active robotic team
- Experience with supervising students on Master or PhD levels

Starting Date: Your employment can start immediately, but later starts are also possible.

How to Apply and Contact: Please send to [martin.saska@fel.cvut.cz](mailto:martin.saska@fel.cvut.cz) the following information:

1. Letter of motivation with specification of your interest and experience with aerial robots (in case of aerial robotic positions) and swarms (in case of swarm positions).
2. Your CV, with links to your homepage and videos/results if available.
3. Publication list and copies of 3 major publications

For questions, please contact me directly: [martin.saska@fel.cvut.cz](mailto:martin.saska@fel.cvut.cz)

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### **6.16. Postdoc: North Carolina A&T State University, USA**

Contributed by: Abdollah Homaifar, [Homaifar@ncat.edu](mailto:Homaifar@ncat.edu)

#### Post-Doctoral Position in Machine Learning for Robotics Applications

The Autonomous Control and Information Technology (ACIT) Institute at NC A&T State University's Electrical Engineering Department, invites applications for a full-time, post-doctoral research associate position in Artificial Intelligence and Machine Learning and its applications to control of autonomous vehicles. The current research project aims to use data driven methods to develop and implement control, as well as testing and evaluation techniques for autonomy algorithms of autonomous vehicles.

This is a non-tenure-track, year-to-year appointment, renewable annually for up to four years subjected to satisfactory performance, availability of resources, and the needs of the Institute. We particularly look for applicants that have a demonstrated track record in robotics, machine learning, artificial intelligence and have strong background in systems and control problems. Demonstrated proficient programming skills are required (Preferably Python), and practical experiences with embedded real-time systems are desired. It is expected from any candidate to have demonstrated/published research products based on Robot Operating System (ROS) applications, especially within the experimental setups of localization and navigation problems for both hardware and software implementations. Besides, the applicants with additional expertise in deep learning, online data stream classification and clustering analysis, are more preferred.

The candidate will also be working with both graduate and undergraduate students in a mentoring role and will be involved in developing research proposals, conducting workshops, and seminars. The candidate will enjoy a dynamic and collaborative working environment of our cutting-edge autonomous vehicle research team. U.S. citizenship is preferred, and minority candidates are strongly encouraged to apply. If interested, please apply electronically by sending a detailed curriculum vitae, copies of your top three publications, the summary of your PhD dissertation, names and contact information of three references, and other information that might be relevant to your application to ACIT Institute Director Dr. Abdollah Homaifar ([homaifar@ncat.edu](mailto:homaifar@ncat.edu)).

<https://jobs.ncat.edu/postings/21532>

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### **6.17. Postdoc: University of Colorado Boulder, USA**

Contributed by: Lucy Pao, [pao@colorado.edu](mailto:pao@colorado.edu)

Post-doctoral position opening in control, co-design, and optimization of wind turbines

The Pao Research Group in the Electrical, Computer, & Energy Engineering (ECEE) Department at the University of Colorado Boulder (CU Boulder) is seeking an outstanding PostDoctoral Researcher! The successful candidate will work on the development and validation of controllers as well as the co-design and optimization for multi-megawatt wind turbines, with possible extension of the ideas to other application areas such as atomic force microscopy. Our currently funded projects include those on the topics of control design as well as co-design and optimization for a 25-megawatt downwind (fixed-bottom) turbine and a 10-megawatt wind turbine on a lightweight floating platform. We also have pending proposals on control design as well as co-design and optimization for atomic force microscopy and hydrokinetic turbine systems.

The successful postdoc will be expected to work on two of our funded projects, where the postdoc will have some choice on the particular projects on which they will work. Since most of our projects are joint with the US National Renewable Energy Laboratory (NREL), it is expected that at least one project that the postdoc works on will be joint with NREL and thus the applicant must meet requirements to gain site access at NREL. Familiarity with issues related to the control, design, and simulation of wind turbines and/or floating structures and with NREL-developed software tools for evaluating wind turbine control algorithms will be beneficial, as will leadership and mentoring skills.

The University of Colorado Boulder is an Equal Opportunity employer and is committed to building a culturally diverse community of faculty, staff, and students dedicated to contributing to an inclusive campus environment.

The start date for this position is anticipated to be as early as May 1, 2021 and preferably no later than September 1, 2021. The initial appointment will be for 12 months, and can potentially be renewed for an additional 12 months.

The University of Colorado offers excellent benefits, including medical, dental, retirement, paid time off, tuition benefit and ECO Pass. The University of Colorado Boulder is one of the largest employers in Boulder County and offers an inspiring higher education environment. Learn more about the University of Colorado Boulder.

For further details regarding the position and to apply, please visit:

<https://jobs.colorado.edu/jobs/JobDetail/?jobId=28061>

Completed applications received by February 15, 2021 will receive full consideration. Applications will be accepted until the position is filled. Application materials will not be accepted via email. For consideration, applications must be submitted through CU Boulder Jobs.

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### **6.18. Postdoc: Lund University, Sweden**

Contributed by: Anders Rantzer, [rantzer@control.lth.se](mailto:rantzer@control.lth.se)

Postdoc: Lund University, Sweden

The department of Automatic Control at Lund University is announcing PhD and postdoc positions funded by an Advanced Grant from the European Research Council. The project is devoted to theory for large scale systems, learning based control and applications in district heating networks.

See <http://www.lth.se/english/work>.

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### **6.19. Postdoc: Kiel University, Germany**

Contributed by: Thomas Meurer, [tm@tf.uni-kiel.de](mailto:tm@tf.uni-kiel.de)

Postdoc position in the area “Product property controlled multi-stage hot sheet metal forming”

The Chair of Automatic Control at the Institute of Electrical Engineering and Information Technology of the Faculty of Engineering at Kiel University, Kiel, Germany is seeking at the earliest possible date an excellent postdoctoral researcher to work on model-based estimation and control design for sheet metal forming processes. This involves modeling using the finite element method, the analysis and the model order reduction of large-scale systems, and estimator and controller design based on reduced order models of complex dynamical processes.

Candidates should possess a doctoral degree related to estimation, control and optimization for distributed parameter systems. Strong analytical and problem solving skills and experience in numerical techniques, in particular the finite element method and model order reduction, are presumed. The successful applicant should have an excellent research and publication record.

The position and the research activities are embedded in the Priority Program SPP 2183 “Property-controlled metal forming processes” funded by the Deutsche Forschungsgemeinschaft. Willingness to work in an interdisciplinary team with specialists from metal forming and manufacturing is mandatory. We are looking for a strongly motivated person. Excellent command of the English language (orally and writing) is required. Knowledge of the German language is beneficial.

The position is limited to one year. The salary is competitive according to the German pay scale TVL-13 with experience level depending on previous work experience, including social benefits.

To apply please submit:

- one-page cover letter
  - full Curriculum Vitae
  - names and contact information for at least two professional references
- as single PDF file to Prof. Thomas Meurer ([tm@tf.uni-kiel.de](mailto:tm@tf.uni-kiel.de)).

Applications should be submitted before January 21th, 2021. This position is available effective immediately.

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## **6.20. Postdoc: University of Kentucky, USA**

Contributed by: Xu Jin, [xu.jin@uky.edu](mailto:xu.jin@uky.edu)

Postdoc Position in intelligent autonomous vehicle control at the University of Kentucky

One Postdoc position is available in the Department of Mechanical Engineering at the University of Kentucky, Lexington, KY, in Dr. Xu Jin's group on the topics of intelligent autonomous vehicle control. The ideal candidate should already have (or will soon have) a Ph.D. degree in an electrical/mechanical/automation/vehicle engineering program, and should have a strong standing in the following areas:

1. Good English writing, speaking, listening, and reading skills
2. Solid theoretical foundation in adaptive control and/or iterative learning control
3. Solid theoretical foundation in nonlinear and multiagent systems and control
4. Solid practical skills in camera/vision-based analysis and control
5. Experimental skills with ground robots/vehicles (wheeled and/or unicycle-type robots/vehicles, such as Quanser Qbot /QCar)
6. Computer-aided design skills
7. Significant programming skills, both software and hardware

The Postdoc offer is valid for one year, and renewable for another year based on performance. Package will include stipend (salary), benefits, health care coverage, research travel, etc. The starting time can be negotiable, ideally between August and December of 2021.

More research details regarding Dr. Xu Jin's areas can be found on the website:

<https://www.engr.uky.edu/directory/jin-xu>

and the external links included.

How to apply: Applications should be emailed to Dr. Xu Jin at [xu.jin@uky.edu](mailto:xu.jin@uky.edu) as soon as possible. Please include a full CV, PDFs of relevant publications, transcripts, and names of at least three references. Upon initial email discussions, those who are encouraged to apply will receive further instructions.

\* 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, including UAV, ground robot, and air table satellite testing facilities. The city of Lexington is ranked #3 Best City to Raise a Family, # 4 City with Best Tech Career Potential, # 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 also known as the "Horse Capital of the World".

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### **6.21. Postdoc: Arizona State University, USA**

Contributed by: Daniel E. Rivera, [daniel.rivera@asu.edu](mailto:daniel.rivera@asu.edu)

Open postdoctoral position at Arizona State University

We are seeking applicants for an open postdoctoral position in the Control Systems Engineering Laboratory at Arizona State University for projects related to the use of system identification, model predictive control, and related technologies for modeling and optimizing mHealth behavioral interventions, with an emphasis on interventions to promote physical activity. The funding sources are three US National Institute of Health (NIH) grants (noted in the entry on PhD positions at ASU in this issue of the e-letter).

Qualified applicants will have an earned doctorate in chemical, electrical, mechanical engineering or related field, and show evidence (through dissertation work and publications) of being able to contribute to areas of relevance to these projects at a high level of proficiency. Preference will be given to applicants who wish to use the postdoctoral position as a means to develop credentials for an academic career.

The position is available immediately for one year, but may be renewed for a second year based on performance and continued availability of funds.

Candidates should submit, via email to Prof. Daniel E. Rivera ([daniel.rivera@asu.edu](mailto:daniel.rivera@asu.edu)), the following: 1) a curriculum vitae, including educational background and a list of publications, 2) two publications representing the applicant's research work, and 3) contact information for two references.

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### **6.22. Faculty: University of Waterloo, Canada**

Contributed by: John Thistle, [jthistle@uwaterloo.ca](mailto:jthistle@uwaterloo.ca)

Department of Electrical & Computer Engineering, University of Waterloo, Canada: Definite-Term Lecturer(s)

The Department of Electrical & Computer Engineering at the University of Waterloo invites applications for five (5) full-time Definite-Term Lecturer positions with an anticipated start date of July 1, 2021. Priority areas for the Department include, but are not limited to, software engineering, electric circuits, control, and power engineering. While the initial appointments will be for a period of three years, there will be a possibility of renewal for a second three-year term, and of ongoing appointment thereafter as Continuing Lecturer on the basis of outstanding performance. Candidates should hold a doctoral degree in electrical engineering, computer engineering, or a closely related discipline; exceptionally, applicants without doctorates may be considered, but all applicants must demonstrate an ability to assess the state of the art critically, and to keep abreast of it, through involvement in research or advanced practice.

Preference will be given to candidates with exceptional teaching skills and, ideally, a documented ability to teach large undergraduate engineering courses. A background spanning a range of sub-disciplines of electrical and computer engineering is highly desirable; and a record of effective administrative service is also an asset, especially if it involves contributions to curriculum development. Although teaching is the primary duty of a Lecturer, successful candidates will have the opportunity to take part in other aspects of teaching, research, and university governance. Selected applicants must be licensed as Professional

Engineers in Canada, or will be required to apply for a licence or a limited licence within one year of appointment.

Depending on qualifications, annual full time salary will typically range from \$95,000 to \$115,000, with greater remuneration possible for exceptional candidates.

Applicants should submit a cover letter, a current curriculum vitae, a one-page statement of past and potential teaching contributions, a one-page statement of contributions to the field in research or in practice, selected samples (up to four in number) of past contributions (excerpts of course materials, publications, patents, design documents, etc.), and the names of at least three references to <https://ecefes.uwaterloo.ca/OFAS/index.php>. Screening will begin immediately upon receipt of a complete application. To ensure full consideration, applications must be received before January 15, 2021.

To submit questions regarding the position, the application process, assessment process, eligibility, or a request for accommodation during the hiring process, please contact Brenda McQuarrie, the Administrative Assistant to the Department Chair: [bmcquarr@uwaterloo.ca](mailto:bmcquarr@uwaterloo.ca).

The University is committed to leadership in technology-enabled learning. It is a vibrant community built around teaching excellence and scholarship in teaching, with direct and active institutional support through its Centre for Teaching Excellence and resources deployed in the faculties and departments. There is a strategic commitment to research-enhanced, technology-enhanced, and entrepreneurship-enhanced learning. The University of Waterloo excels at experiential learning via the world's largest post-secondary cooperative education program. For the past two decades, the University of Waterloo has been recognized in a national reputation survey of universities as 'best overall', 'most innovative', and producing 'leaders of tomorrow'. A recent survey of business leaders ranked Waterloo Engineering as number one in Canada.

The Department currently has more than 95 faculty members and is one of the largest engineering departments in Canada. The undergraduate programs in Computer Engineering, Electrical Engineering, Software Engineering (offered jointly with the David R. Cheriton School of Computer Science), Mechatronics Engineering (offered jointly with the Departments of Mechanical and Mechatronics Engineering and Systems Design Engineering), Nanotechnology Engineering (offered jointly with the Departments of Chemistry and Chemical Engineering), and Biomedical Engineering (offered jointly with several departments including Systems Design Engineering) attract outstanding students, both domestic and international. The Department also administers a world-class graduate program, which drives cutting-edge research excelling in technological innovations and encompassing all major areas of electrical and computer engineering. Our research is led by faculty members who are internationally recognized for their expertise and holders of many prestigious awards (E. W. R. Steacie Memorial Fellowships, IEEE Fellows, Royal Society of Canada Fellows, etc.) and research chairs. Our graduates are highly sought out all around the world for their exceptional technical training and abilities.

The University of Waterloo regards equity and diversity as an integral part of academic excellence and is committed to accessibility for all employees. As such, we encourage applications from women, persons with disabilities, Indigenous peoples, members of visible minorities, and others who may contribute to the further diversification of ideas. At Waterloo, you will have the opportunity to work across disciplines and collaborate with an international community of scholars and a diverse student body, situated in a rapidly



growing community that has been termed a “hub of innovation.”

All qualified candidates are encouraged to apply, however Canadians and permanent residents will be given priority.

Three reasons to apply: <https://uwaterloo.ca/faculty-association/why-waterloo>.

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### **6.23. Faculty: Peng Cheng Laboratory, China**

Contributed by: Xinyu Ye, [xinyu.ye@foxmail.com](mailto:xinyu.ye@foxmail.com)

Research Assistant Professor of Cooperative Multi-Robot System: The Robotics Research Center @ Peng Cheng Laboratory, Shenzhen, China

Overview: Peng Cheng Laboratory (PCL) is a new type of scientific research institution in the field of network communications in China. PCL focuses on the strategic, forward-looking, original scientific research and core technology development in the related fields. PCL is headquartered in Shenzhen, Guangdong, with main research themes in network communication, cyberspace and network intelligence. As an integral part of China’s national strategic scientific and technological initiatives, PCL is committed to serving China’s national developmental scheme in broadband communications, future network, as well as serving its key role in establishing the Guangdong-Hong Kong-Macao Greater Bay Area, and helping Shenzhen building itself towards a pioneering demonstration zone with Chinese characteristics.

The Robotics Research Center (RRC) focuses on the marine applications of the heterogeneous underwater swarm robots. The first key project is Collaborative Operation Platform for Smart Underwater Robots (COPSUR). The critical scientific technologies include environmental perception, controlling, driving and communication systems in underwater robots. Through the specialized capabilities, the multidisciplinary research extends to the leading-edge exploration and fundamental research on ocean and marine engineering technologies related to ocean observation, ocean oil and gas, offshore wind turbines, marine fisheries and underwater security, etc.

Job Description: Your primary responsibility will be conducting research studies on the cooperative multi-robot system to address relevant challenges in the field of multi-robot system. Current research areas include multi-robot cooperative control, cooperative decision making, game theory based control, etc. You will help provide technical vision for the project planning and implementation of the key projects at the Robotics Research Center.

Required Qualifications: - Have (or will soon receive) a Ph.D from the top universities of China or the top 300 universities worldwide in the QS Rankings; have demonstrated record of publications in the top journals/conferences in the past 5 years;

- Have proven research experiences in the related fields, including Robotic Control, Decision Making, Path Planning, Game Theory, Reinforcement Learning, Control Theory & Control Engineering, Pattern Recognition & Intelligent System, etc;

- Have proven ability in defining robotics research problems and identifying possible solutions and excellent written and oral communication skills.

Salary and other welfare: Annual Salary: above 450,000 CNY.

For the candidate who meets the criteria of overseas high-level personnel program of Shenzhen (the Peacock Plan Program), you can apply for the personal allowance (1.6 million CNY) if qualified (current policy). Research supports: the research group has a technical supporting team consisting of full-time experienced engineers in terms of mechanical engineering, embedded system, control algorithm, computer vision, navigation and positioning, etc;

Long-term collaboration with the renowned professors from the top universities in China, including Shanghai Jiao Tong University, Southern University of Science and Technology, Northwestern Polytechnical University, Northeastern University, etc.

Other welfares: High-standard social insurance and housing fund; Provide proper assistances in housing and children's education; Annual aid leave, annual health checkups and other subsidies; Staff canteen, free company bus, free gym, etc.

Please send your personal resume, including personal education/work/research experiences, major research achievements and contact information, to Mr. Ye.

Email: [yexy@pcl.ac.cn](mailto:yexy@pcl.ac.cn); or [ye.yexinyu@hotmail.com](mailto:ye.yexinyu@hotmail.com)

The official recruitment channels in Chinese are linked below:

<https://jobs.51job.com/shenzhen-nsq/127363216.html?s=04>

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#### **6.24. Faculty: Lulea University of Technology, Sweden**

Contributed by: Khalid Atta, [khalid.atta@ltu.se](mailto:khalid.atta@ltu.se)

Professor and Head of Subject in Automatic Control

Lulea University of Technology is experiencing strong growth with world leading competence in several areas of research. Our research is conducted in close collaboration with industries such as Bosch, Ericsson, Scania, LKAB, SKF and leading international universities. Luleå University of Technology has a total turnover of SEK 1.8 billion per year. We currently have 1,700 employees and 15,100 students.

We shape the future through innovative education and groundbreaking research. Drawing on our location in the Arctic region, we create global societal benefit.

The research subject Automatic control is central for Luleå University of Technology's active participation and contribution to the development of strategically important research areas such as process regulation and optimization in close collaboration with the Excellence center ProcessIT Innovation. The subject topics connects to adjacent research areas such as pervasive and mobile computing, cyber-physical systems, electronic systems, robotics and AI, machine learning and dependable communication and computation

systems.

The subject is one of Luleå University of Technology's older research subjects and of great importance for most of the university's educations and strategic research and innovation areas. The subject is currently led by a chair who is planning for retirement, and the recruitment of a new chair enables a controlled shift. The subject is expected to lead education, research and third cycle education within the subject as well as to conduct and develop research collaborations with other parts of the university as well as with other universities and research actors, both nationally and internationally.

The position of the chair is at the Department of Computer Science, Electrical and Space Engineering, where the university has gathered research and education in space technology, automatic control, computer- and systems-science. The institution's turnover is approximately SEK 280 million, where the education accounts for one third and external funding for research for two third. The department has well established collaborations with research institutes, business partners, universities and other authorities. The environment at the department is open, dynamic and brings together researchers from about twenty different nationalities as well as doctoral students and students from all over the world.

The research group work strategically and successfully with external funding and senior researchers have very good experience of attracting external funds. The subject is within applied research and is regarded to have good opportunities to continue to attract external funding from national research councils and authorities and within the European Framework Programs.

Subject description: Automatic Control comprises the analysis and synthesis of models and model-based algorithms for control, estimation, and monitoring of complex dynamic systems.

Duties: The position as professor and head of subject includes the main responsibility for the subject's development, including research, postgraduate education and education at basic and advanced level. The duties also include developing collaboration with other parts of LTU as well as with national and international research environments as well as with surrounding society and industry. As head of subject, you lead, develop and inspire the group in its development, and you are expected to attract external funds on your own and in collaboration with others.

Qualifications: Persons are qualified for being appointed as Professor if they have demonstrated both scientific and pedagogical proficiency. As much attention should be given to the assessment of pedagogical proficiency as to the scientific proficiency. In order to meet the requirements for the position of Professor, the applicants shall:

- demonstrate academic leadership and ability to conduct and develop research in collaboration with the surrounding community,
- be prominent within their subject area and demonstrate an original and innovative scientific core in their work while attaining a high international standard, including a total scientific production corresponding to at least three doctoral dissertations,
- have documented their experience in seeking and being granted external funding for research and development projects,
- demonstrate documented experience in supervising at third-cycle level and, unless there are special grounds, should have been the principal supervisor for at least one doctoral student for up to them re-

ceiving their degree. The supervisory period shall include the majority of the doctoral student's third-cycle studies.

- demonstrate documented pedagogical proficiency and collaboration with the surrounding community in educational contexts for the purpose of contributing to the relevance of the education and preparation for working life.

Assessment Criteria: The following assessment criteria are applied:

- scientific proficiency
- pedagogical proficiency
- the ability to lead and develop activities
- additional assessment criteria (equally weighted)
- the ability to obtain external research and development funding
- the ability to collaborate with the surrounding community
- experience in assignments and tasks that involve leadership

In addition, other objective grounds, such as the university's gender equality goals, shall be taken into account.

Information: For more information, please contact: Department chair Jonas Ekman+46 (0)920-49 2828 [jonas.ekman@ltu.se](mailto:jonas.ekman@ltu.se)

Application: Please apply for the position by clicking on the application button below and attach the requested application documents including diplomas (certified and translated into Swedish or English), pedagogical self-reflection and publications, etc. We prefer that applicants follows the Instructions for applicants. Note that the applicant's educational qualifications should be particularly documented. Please write your application in English. We often have English speaking external experts. Mark your application with the reference number.

Final day to apply: 12 February 2021

Reference number: 3879-2020

URL to this page:

<https://www.ltu.se/ltu/Lediga-jobb?l=en&rmpage=job&rmjob=4325&rmlang=UK>

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## **6.25. Faculty: The University of Texas at Dallas, USA**

Contributed by: Mario Rotea, [rotea@utdallas.edu](mailto:rotea@utdallas.edu)

Assistant Professor of Mechanical Engineering - Dynamic Systems and Control

The Erik Jonsson School of Engineering and Computer Science at The University of Texas at Dallas invites applications for a tenure-system faculty position in Mechanical Engineering at the rank of Assistant Professor.

Candidates must have a strong commitment to undergraduate and graduate education and strong potential to develop an externally funded research program.

The search is for a position in dynamic systems and control with emphasis on theory-based methodology to tackle problems grounded in emerging applications/novel experimental methods. While outstanding candidates in all areas will be considered, interest areas include: data-driven methods, renewable energy, manufacturing & automation, and healthcare. Collaboration opportunities exist through UT Southwestern Medical School and the University's Center for Wind Energy.

The Department of Mechanical Engineering offers ABET-Accredited BS, MS and PhD degree programs. The department enrolled over 1200 students in spring 2020, including more than 90 doctoral graduate students. The junior faculty are highly decorated and include three NSF CAREER awardees and eight DoD Young Investigator Program awards. The department is primarily housed in a brand-new building with 200,000 square feet for teaching and research. The department is home to an NSF IUCRC for wind energy (Wind-STAR) and has modern research facilities and equipment including a unique boundary layer and subsonic wind tunnel.

To apply, applicants should submit a letter of interest; current curriculum vitae; statements of research and teaching interest; teaching evaluations (if available) and the full contact information for at least three academic or professional references. Further instructions can be found at <https://jobs.utdallas.edu/postings/15251>

The University of Texas at Dallas provides equality of opportunity in education and employment for all students and employees and strongly encourages applications from candidates who would enhance the diversity of the University's faculty and administration.

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