

E-LETTER on Systems, Control, and Signal Processing

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Welcome to the June issue of the Eletter, available electronically [here](#).

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1. IEEE CSS Headlines

1.1. IEEE Control Systems Society Publications Content Digest

Contributed by: Elizabeth Kovacs, ekovacs2@nd.edu

CSS Publications Content Digest 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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1.2. IEEE Transactions on Automatic Control

Contributed by: Elizabeth Kovacs, ekovacs2@nd.edu

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1.3. IEEE Control Systems Society Technically Cosponsored Conferences

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

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

- Workshop on Control of Systems Governed by Partial Differential Equations (CPDE 16). Bertinoro, Italy. Jun 13 - Jun 15, 2016. <http://www.cpde2016.org/>
- 6th International Symposium on Advanced Control of Industrial Processes (AdCONIP 2017). Taipei, Taiwan. May 28 - May 31, 2017. <http://www.adconip2017.org/>
- 16th International Conference on Control, Automation and Systems (ICCAS 2016). Gyeongju, South Korea. Oct 16 - Oct 19, 2016. <http://2016.iccas.org/>
- 20th International Conference on System Theory, Control and Computing (ICSTCC 2016). Sinaia, Romania. Oct 13 - Oct 15, 2016. <http://ace.ucv.ro/icstcc2016/>
- 2017 Indian Control Conference. Guwahati, India. Jan 4 - Jan 6, 2017. <http://icc.org.in/>

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

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2. Summer Schools

2.1. Summer School: Advanced Algorithms for Traffic Prediction and Control

Contributed by: Antoneta Iuliana BRATCU, antoneta.bratcu@gipsa-lab.fr

Summer School on “Advanced Algorithms for Traffic Prediction and Control”

Location and Date: Grenoble (France) - September 12 to 16, 2016

Scientific Chair: Carlos CANUDAS DE WIT (GIPSA-lab - Grenoble, France)

Local organizer: Antoneta Iuliana BRATCU (GIPSA-lab - Grenoble, France)

Website: <http://www.gipsa-lab.fr/summerschool/auto2016/>

This Summer School aims at presenting the main mathematical tools which allow modelling, predicting and controlling the traffic, starting with the classical ones to the most advanced ones, including optimal routing and cooperative ITS. The school will consist of a series of surveys, lectures and research talks taught in English, completed by a full day dedicated to industrial presentations and demonstrations of operational tools, among which the Grenoble Traffic Lab (GTL).

The Summer School is mainly intended to PhD students, researchers and scholars in control and traffic engineering, and applied mathematics, being meanwhile open to industrial participants.

Speakers:

Carlos Canudas-de-Wit (CNRS-GIPSA-lab, Grenoble, France)

Roberto Horowitz (University of California at Berkeley, USA)

Alain Kibangou (GIPSA-lab, Grenoble, France)

Lyudmila Mihaylova (University of Sheffield, U.K.)

Markos Papageorgiou (University of Crete, Greece)

Samitha SAMARANAYAKE (Cornell University, USA)

Martin Treiber (Technische Universität Dresden, Germany)
Henk Wymeersch (Chalmers University of Technology, Sweden)

Early registrations are encouraged. The number of participants is limited to 50.

For further information, please contact Antoneta Iuliana BRATCU
(antoneta.bratcu@gipsa-lab.fr)

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2.2. Summer School: An Introduction to Modelling and Control of Systems Governed by PDEs (1st edition)

Contributed by: Yann Le Gorrec, legorrec@femto-st.fr

Summer school: An Introduction to Modelling and Control of Systems Governed by PDEs (1st edition)

University Residential Centre of Bertinoro (Ce.U.B.)

Bertinoro (FC), Italy,

9-12 June 2016

<http://www.cpde2016.org/summer-school/>

Sponsored by IFAC

DEADLINE FOR REGISTRATION: May 20, 2016

The scope of the summer school is to provide a succinct but rigorous introduction to systems modelled by partial differential equations. The school is open to all aspiring scholars in any area of mathematics or engineering who wish to work on PDEs of any kind (whether theoretical or applied), and it is especially addressed to doctoral students and young postdoctoral scholars. The aim of the school is to deepen into both theoretical developments and applications. The school focuses on four main topics:

- Modelling,
- Analysis,
- Numerical aspects, and
- Control design.

More in detail, the summer school consists of 3 days and half of classes, with each day devoted to a specific topic. Every morning and afternoon is divided into 4 time slots of 50 minutes each. Two time slots are devoted to standard frontal teaching, while the other two slots to exercises under the supervision of the teacher.

ORGANIZING COMMITTEE

- Yann Le Gorrec (FEMTO-ST / AS2M, FR)
- Alessandro Macchelli (University of Bologna, IT)
- Thomas Meurer (Christian-Albrechts-University, DE)
- Ralph C. Smith (North Carolina State University, US)

LECTURERS

- Laurent Lefèvre (LCIS - Esisar, FR)
- Hans Zwart (University of Twente, NL)
- Michael Hinze (University of Hamburg, DE)

For more information and registration: <http://www.cpde2016.org/summer-school/>

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3. MISC

3.1. Working Paper: The Risk of Automation for Jobs in OECD Countries

Contributed by: J.A. Acosta, jaar@us.es

Arntz,M., T. Gregory and U. Zierahn (2016),

“The Risk of Automation for Jobs in OECD Countries: A Comparative Analysis”,

OECD Social, Employment and Migration Working Papers, No. 189, OECD Publishing, Paris.

DOI: <http://dx.doi.org/10.1787/5jlz9h56dvq7-en>

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3.2. Survey on Applications of Embedded Optimization

Contributed by: Hans Joachim Ferreau, joachim.ferreau@ch.abb.com

Survey on Applications of Embedded Optimization

We have created a 5-minute-survey on applications of embedded optimization targeting both scientific and industrial staff. The idea is to characterize such applications and to learn about challenges of the technology that you feel need to be addressed by the research community or software developers. You can find the survey here:

<https://www.surveymonkey.com/r/embeddedOptimization>

We aim at presenting the results at academic conferences (e.g. at ECC'16 in Denmark on June 29) and in a scientific journal to provide feedback to the community. We appreciate your help in gathering the current state of the art.

Joachim Ferreau

Stefan Almér

Juan Jerez

Alexander Domahidi

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4. Journals

4.1. Contents: Control Engineering Practice

Contributed by: Martin Böck, cep@acin.tuwien.ac.at

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4.2. Contents: IEEE/CAA Journal of Automatica Sinica

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

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4.3. Contents: International Journal of Control, Automation, and Systems

Contributed by: Young Hoon Joo, journal@ijcas.com

International Journal of Control, Automation, and Systems (IJCAS)

ISSN: 1598-6446

<http://www.springer.com/engineering/robotics/journal/12555>

Indexed in: Science Citation Index Expanded (SciSearch), Journal Citation Reports/Science Edition, SCOPUS, INSPEC, Google Scholar, ProQuest, Academic OneFile, Current Contents/Engineering, Computing and Technology, EI-Compendex, OCLC, SCImago, Summon by Serial Solutions

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4.4. CFP: IEEE Transactions on Smart Grid

Contributed by: Javad Lavaei, lavaei@berkeley.edu

Call for Papers - IEEE Transactions on Smart Grid

Special section on Distributed Control and Efficient Optimization Methods for Smart Grid

Smart grid proactively uses the state-of-the-art technologies in communications, computing, and control to improve efficiency, reliability, sustainability, and stability of the electrical grid. In particular, distribution networks are expected to undergo dramatic changes by incorporating a large number of sensors and thousands of controllable devices such as distributed generators, batteries and flexible loads. To be able to efficiently operate such complex large-scale systems, new sets of control and optimization tools should be developed. On a slow time scale, optimization theory plays a major role in solving various large-scale decision-making problems for future power transmission and distribution systems. Two main questions to be addressed are as follows: (i) how to design computational methods to handle fairly detailed power system models that often include continuous and discrete nonlinearities? (ii) how to design distributed computation techniques to shift the computation from a centralized platform to many computing devices? On a fast time scale, control theory aims to provide stability and robustness margins for the entire system in presence of uncertainty and stochasticity, and offer some optimality guarantee on the real-time behavior. Since centralized controllers often suffer from serious computation, communication and robustness issues for power systems with many controllable devices, distributed control is perhaps the only viable strategy for such systems. Four main

questions to be addressed are as follows: (i) how to systematically design stabilizing, robust and high-performance distributed controllers for different parts of the grid? (ii) what underlying communication network of the designed distributed controller should be to achieve certain performance guarantees? (iii) how to coordinate among different distributed controllers used in the system (such as frequency and voltage controls in transmission networks and load controls in distribution networks), including the consideration of controllers for legacy equipment? (iv) how to replace time-consuming offline optimization algorithms with real-time distributed controllers in order to accelerate computation and improve robustness of the closed loop (e.g., solving a dynamic energy management problem via a dynamic online controller as opposed to an offline numerical algorithm)? We plan this special section to address the critical areas of distributed control and high-performance optimization techniques for smart grid. Survey papers are also welcome.

Submitted papers should study distributed control and/or optimization techniques for a major problem for smart grid (such as design, planning, operation, dynamic energy management, or incorporation of renewable energy). Topics of interest include, but are not limited to:

- Distributed control and computation
- Nonlinear optimization
- Large-scale optimization
- Design of communication networks to support distributed control/optimization

This special section solicits original work that is not under consideration for publication in other venues. Extended abstracts of up to two pages are requested for the first round of reviews. Authors of selected extended abstracts will be invited to submit full papers, of up to eight pages, in a second round of reviews. Prospective authors should refer to <http://www.ieee-pes.org/publications/information-for-authors> for guidelines on content and formatting of submissions. Please submit a PDF version of the extended abstract, including a cover letter with the authors' contact information, via e-mail to lavaei@berkeley.edu. Full papers should be submitted to: <https://mc.manuscriptcentral.com/tsg-pes>

Important Dates

- August 1st, 2016: Deadline for extended abstract submission
- September 1st, 2016: Decision notification for inviting full paper submissions
- November 1st, 2016: Deadline for full paper submission
- June 1st, 2017: Notification of final decisions
- July 1st, 2017: Publication materials due

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4.5. CFP: Asian Journal of Control

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

CALL FOR PAPERS

Special Issue on "Recent Emerging Technologies in Atomic Force Microscopy"

<http://www.ajc.org.tw>

Nano-technology is an important research area in the 21st century. There are many relevant applications in various industries, such as for scientific measurement and for high tech. business areas. Atomic Force Microscopy (AFM) opens a new window to the nano-world. It features a high resolution for imaging and manipulating samples on a nanoscale in vacuum, gases, or liquid operational environments, and has now become a widely used tool in the sectors of, for example, biological sciences, industrial inspection, and medical testing, etc. As a result, AFM is becoming more and more important as one of the key approaches in next generation nano-technology.

This special issue invites original articles that address both theoretical and application-oriented papers, including innovative mechanism design, control technological improvements, new scanning methods, and any related technologies in AFM. Topics of potential interest include, but are not limited to:

- AFM mechanism design
- AFM control methods
- New scanning methods in AFM
- AFM actuators or sensors
- Modeling and simulation of AFM systems
- Applications of AFM systems

About AJC

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

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5. Conferences

5.1. American Control Conference

Contributed by: Rifat Sipahi, rifat@coe.neu.edu

American Control Conference is coming to Boston after more than a decade; it will be held in downtown Boston during July 6-8, 2016.

<http://acc2016.a2c2.org/index.html>

Different from previous years, this year's Conference features a number of new and exciting programs specifically geared toward industry:

One of them is called the APPLICATIONS FRIDAY

<http://acc2016.a2c2.org/apps-friday.html>

It aims to reach a broad audience of controls enthusiasts, with a minimal one-day registration fee.

The Friday activities will be perfect for undergraduates, young professionals, and engineers practicing in industry; for all those who are willing to connect and get engaged with the community they love, through networking, company exhibits, student presentations, and public talks by experts.

Interested in presenting a poster? Visit conference website, and navigate to "student activities"

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5.2. International Conference on Intelligent Control and Information Processing

Contributed by: Shaofu Yang, icicip@cs.cityu.edu.hk

International Conference on Intelligent Control and Information Processing

The Seventh International Conference on Intelligent Control and Information Processing (ICICIP 2016) will be held in Siam Reap, Cambodia during December 1-4, 2016, following the successes of previous events. Located in Cambodia northern province of Siem Reap, Angkor Wat is one of the most important archaeological sites in South-East Asia, the largest religious monument in the world, and listed by UNESCO as a cultural heritage. ICICIP 2016 aims to provide a high-level international forum for scientists, engineers, and educators to present the state of the art of research and applications in related fields. The symposium will feature plenary speeches given by world renowned scholars, regular sessions with broad coverage, and special sessions focusing on popular topics.

CALL FOR PAPERS AND SPECIAL SESSIONS:

Prospective authors are invited to contribute high-quality papers to ICICIP2016. In addition, proposals for special sessions within the technical scopes of the symposium are solicited. Special sessions, to be organized by internationally recognized experts, aim to bring together researchers in special focused topics. Papers submitted for special sessions are to be peer-reviewed with the same criteria used for the contributed papers. Researchers interested in organizing special sessions are invited to submit formal proposals to ICICIP2016. A special session proposal should include the session title, a brief description of the scope and motivation, names, contact information and brief biographical information on the organizers. The proceedings has been contracted to be included in IEEEExplore Digital Library and submitted for EI indexing.

For more information, please visit <https://conference.cs.cityu.edu.hk/icicip/>

Special session proposals: June 1, 2016

Paper submission: July 1, 2016

Notification of acceptance: September 1, 2016

Camera-ready copy and author registration: October 1, 2016

Conference: December 1-4, 2016

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5.3. International Conference on Control, Automation and Systems

Contributed by: ICCAS2016, conference@icross.org

2016 16th International Conference on Control, Automation and Systems (ICCAS 2016)

October 16(SUN)-19(WED), 2016

HICO, Gyeongju, Korea

<http://2016.iccas.org>

ICCAS 2016 will be held at HICO. Gyeongju, Korea on October 16(SUN)-19(WED), 2016. The aim of the ICCAS is to bring together researchers and engineers worldwide to present their latest works, and disseminate the state-of-the-art technologies related to control, automation, robotics, and systems.

Important Dates

May 6, 2016: Submission of organized session proposals

May 27, 2016: Submission of full papers

** June 30, 2016: Submission of position papers** (Extended!!)

July 15, 2016: Notification of paper acceptance

August 12, 2016: Submission of final camera-ready papers

Position Papers

Authors may also have an option to submit position papers on preliminary work. Position papers (2 to 6 pages long) accepted for presentation will be ONLY published in the conference proceedings, but will NOT be indexed in IEEE Xplore, SCOPUS and EI compendex.

Plenary Speakers

Andrew Schwartz (Univ. of Pittsburgh, USA)

Maria Prandini (Politecnico di Milano, Italy)

Sangchul Won (POSTECH, Korea)

Satoshi Tadokoro (Tohoku Univ., Japan)

James Ashton-Miller (Univ. of Michigan, USA)

Huijun Gao (Harbin Institute of Technology, China)

Song K. Choi (Univ. of Hawaii, USA)

The treasure of a brilliant cultural heritage Welcome to Gyeongju!! Gyeongju was the capital city of Shilla for 992 years. The history of Gyeongju, which was once called Seorabeol, is also the history of the thousand-year-old Shilla Dynasty. Gyeongju embraces a radiant ancient culture where Buddhism, science, and the arts and crafts of the people of Shilla flourished, and the great spirits of Hwarangdo attained the nification of the three kingdoms. This is why Gyeongju is so well preserved by its people and thus, has been designated as a World Cultural Heritage by UNESCO. The evergreen spirit of Shilla has been alive here for nearly a thousand years. Gyeongju is truly a museum without walls.

This event starts right after IROS 2016(Oct. 9-14), Daejeon, Korea. It takes 1 hour from Daejeon to Gyeongju by KTX(Korea Train eXpress).

Thank you for your contributions and we look forward to seeing you at ICCAS 2016 during October 16-19, 2016.

ICCAS 2016 CFP: http://icross.org/data/download/ICCAS2016/ICCAS2016_CFP.pdf

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5.4. International Symposium on Advanced Control of Industrial Processes

Contributed by: Jong Min Lee, jongmin@snu.ac.kr

CFP: The 6th International Symposium on Advanced Control of Industrial Processes (AdCONIP 2017)
May 28-31, 2017, Taipei

On behalf of the organizing committee, we are pleased to invite you to submit papers and proposals for the 6th International Symposium on Advanced Control of Industrial Processes (AdCONIP 2017) which will take place in Taipei, Taiwan, May 28-31, 2017.

AdCONIP 2017 aims at bringing together researchers and practitioners from academia and industry to discuss the state of the art developments/techniques in advanced control and their applications in industry. Major symposium topics include, but are not limited to:

- Process Control and Automation
- Signal Processing
- Identification and Estimation
- Controller Performance Evaluation
- Fault Detection and Diagnosis
- Data Reconciliation
- Data Mining and Data Analytics
- Computer Integrated Manufacturing
- Safe Process Operating Systems
- Integration of Process Design and Control / Health Informatics and Bioinformatics
- Factory Automation
- Intelligent Control

- Adaptive and Learning Systems
- Robotics and Mechatronics
- Process Integration and Optimization

The International Program Committee invites authors to submit 6-page papers (or 2-page abstract for authors from industry) in English through <http://AdCONIP2017.org>. Proposals and papers for invited sessions are especially welcome. They should contain the title of the session, a list of at least 5 speakers and titles of their papers, together with papers completed according to the above instructions. Please address requests and questions to the NOC Chair, C. L. Chen, at CCL@ntu.edu.tw.

AdCONIP 2017 proceedings will be included in IEEE Xplore and indexed by EI/Compendex. Extended versions of selected high-quality papers will be invited to submit to special issues in international journals including Control Engineering Practice after the conference.

Important Dates

- 6-page paper submission Jun 1 - Sep 30, 2016
- 2-page abstract (industry) Jun 1 - Sep 30, 2016
- Invited session proposal Jun 1 - Sep 30, 2016
- Acceptance notification Dec 15, 2016
- Final paper submission Jan 31, 2017
- Early-bird registration Mar 31, 2017

Plenary Speakers

- Richard Braatz (MIT, USA)
- Jay H. Lee, (KAIST, Korea)
- Sigurd Skogestad, (NTNU, Norway)
- Jia-Yush Yen, (National Taiwan University, Taiwan)

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5.5. International Workshop on Hybrid Systems Biology

Contributed by: Eugenio Cinquemani, eugenio.cinquemani@inria.fr

HSB 2016: The 5th International Workshop on HYBRID SYSTEMS BIOLOGY

20-21 October 2016, Grenoble (France)

<http://hsb2016.imag.fr/>

Proceedings in Springer LNCS/LNBI series

The 5th International Workshop on ‘Hybrid Systems Biology’ (<http://hsb2016.imag.fr/>) will be held on October 20th and 21st in Grenoble (France). Previous editions have been held in Newcastle upon Tyne (UK), Taormina (Italy), Vienna (Austria, at VSL 2014), and Madrid (Spain, co-located with Madrid Meet 2015).

Registration dates, procedures and costs will be posted in due time on the conference website. Please refer to the conference website for constantly updated information.

Confirmed invited speakers (as of May 20, 2016):

- Linda Petzold (UC Santa Barbara)
- Dennis Bray (University of Cambridge)
- Albert Goldbeter (Université Libre de Bruxelles)

Prior to the conference, on October 19, the organization of a one-day workshop with the above and more invited speakers is being considered.

IMPORTANT DATES

Initial submission: June 16, 2016

Notification: July 16, 2016

Final Submission: August 1, 2016

Accepted submissions are for papers and posters/demos (see further below)

TOPICS OF INTEREST

HSB is a single-track Systems Biology workshop with emphasis on hybrid approaches in a general sense. Hybrid dynamical modelling but also other dynamical modelling approaches are equally part of the scope of the workshop. Interdisciplinary contributions, such as combining modelling, analysis, algorithmic and experimental techniques from different areas, are especially welcome.

For a list of topics of interest, please visit the conference website <http://hsb2016.imag.fr/>

CALL FOR CONTRIBUTIONS

We solicit high-quality submissions, to be refereed by the Program Committee below, to be included in the oral presentation sessions of the workshop. Accepted papers will be published in a conference proceedings volume of the Springer LNCS/LNBI series (<http://www.springer.com/lncs>).

Submitted papers shall describe original work that has not been previously published and is not under review for publication elsewhere. We will consider full papers (about 15 pages in LNCS style; full-blown research work contributing theoretical analysis, methods, algorithms for biology/biomedicine, as well as novel results on biological case studies) and short papers (about 6 pages in LNCS style; work in progress, tool papers and small case studies).

In addition we accept submissions for posters and tool demonstration, to be included in a dedicated poster/demo session of the workshop, in the form of one-page poster/demo abstract (concise description of the research topic, ongoing work, first results or advancements on existing results, objectives and features or further developments of a new or improved tool). Abstracts and posters will not be published. Suitable contributions that could not be included in the workshop oral presentation sessions will be reconsidered for the poster/demo session.

Papers should be written in English, and should not exceed 6 (short papers) or 15 pages (full papers), inclusive of references, and have to be formatted in LNCS style. Additional material may be included in a clearly marked appendix but will not be included in the published version.

Papers need to be submitted electronically as PDF files via the EasyChair online submission system (<https://easychair.org/conferences/?conf=hsb2016>)

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5.6. ShanghaiTech Symposium on Information Science and Technology

Contributed by: Yi Ma, yima@illinois.edu

ShanghaiTech Symposium on Information Science and Technology (SSIST) 2016

June 23-25: <http://ssist2016.shanghaitech.edu.cn>

SSIST is an international forum that features fundamental research developments and groundbreaking technologies in the areas of electrical engineering, computer sciences, and computational mathematics. Each year, the Symposium invites some of the most renowned researchers in the world from both academia and industry to present their latest research work and to discuss future research directions. The Symposium aims to bring the state of the art research and industrial technologies to young faculty and graduate students in China, especially in the neighboring areas of Shanghai.

The first SSIST held in 2015 focused on Data Science and Machine Learning. The second SSIST 2016 will have its focus on three main topics: Robotics, Virtual Reality, and Computing Theory and Systems. This year Symposium will feature some of the most exciting developments in robotics such as unmanned helicopters and cars as well as the revolutionary virtual reality technologies. In conjunction with the Symposium, we also offer a few tutorials, this year including modern Computer Systems and Security etc. Shortly after the Symposium, there will be the 2016 ShanghaiTech Workshop on Emerging Devices, Circuits and Systems(SWEDCS) to be held from June 30th to July 1st 2016.

The symposium is hosted by School of Information Science and Technology, ShanghaiTech University.

Important Dates and Location

- Application Deadline: May 31, 2016
- Notification Date: June 10, 2016
- Symposium: June 23-25, 2016
- Location: Parkyard Hotel Shanghai, No.699, Bibo Road, Pudong District, Shanghai.

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5.7. ShanghaiTech Workshop on Emerging Devices, Circuits and Systems

Contributed by: Yi Ma, yima@illinois.edu

ShanghaiTech Workshop on Emerging Devices, Circuits and Systems

June 31 - July 1: <http://swedcs2016.shanghaitech.edu.cn>

SWEDCS'2016 is the first gathering of world-class experts in computing systems, and is sponsored and organized by the School of Information Science and Technology (SIST) of ShanghaiTech University (<http://www.shanghaitech.edu.cn>) that is jointly founded by Shanghai Municipal Government and Chinese Academy of Sciences (CAS) in 2013. ShanghaiTech University is a small-scale research university that will lead the charge in China's higher education reform by becoming a top academic research institution that is home to world-class research laboratories and faculty members.

This year, the workshop focuses on Energy-Efficient Computing. Today, energy-efficient computing is a key challenge for all modern computing devices and systems. This workshop gathers the most renowned researchers in the world to 1) discuss the state of the art and the future perspectives in the area of energy-efficient computing and 2) identify possible actions to develop the next-generation computing systems with orders of improvement in energy-efficiency. Related research areas include but are not limited to integrated circuits and systems (devices, circuits and architecture), software (OS and algorithms), applications (such as cyber-physical systems and Internet of Things) and neuromorphic computing.

The audience will mostly be young faculty members, post-doctoral researchers, graduate students, and final year undergraduate students in related fields from China and the Asian Pacific region. The workshop charges NO registration fee for attending.

Important Dates and Location

- Application Deadline: May 31, 2016
- Notification Date: June 10, 2016
- Workshop: June 30 and July 1, 2016
- Location: Parkyard Hotel Shanghai, No.699, Bibo Road, Shanghai

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5.8. World Congress: Mathematical Problems in Engineering, Aerospace and Sciences

Contributed by: Seenith Sivasundaram, seenithi@gmail.com

World Congress: Mathematical Problems in Engineering, Aerospace and Sciences

WHEN: 05-08 July 2016

WHERE: La Rochelle, France, University of La Rochelle

Website: <http://www.icnpaa.com>

<http://www.internationalmathematics.com/icnpaa/>

ICNPAA's AIM

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

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

Co-Sponsored by: AIAA: American Institute of Aeronautics and Astronautics

IFIP: International Federation of Information Processing

La Rochelle, France, University of La Rochelle

The proceedings will be published by the American Institute of Physics.

AIP Conference Proceedings are indexed in:

- Astrophysics Data System(ADS)
- Chemical Abstracts Service (CAS)
- Crossref
- EBSCO Publishing
- Electronic Library Information Navigator (ELIN), Sweden
- Elsevier - SCOPUS
- International Atomic Energy Agency (IAEA)
- Thomson Reuters (ISI)

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5.9. IEEE Ecuador Technical Chapters Meeting

Contributed by: Alberto Sanchez, aesanchez@ieee.org

Call for Papers IEEE ETCM 2016

<http://sites.ieee.org/etcm-2016>

We take great pleasure in inviting you to the 2016 IEEE ETCM, which will be held for the first time from October 12th-14th in Guayaquil, Ecuador.

The 2016 IEEE Ecuador Technical Chapters Meeting (ETCM) will be the first edition of what we expect will be the first of a running series of conferences organized by the IEEE Ecuador Section and which intends to create a highly prestigious venue for researchers, students and practitioners from the IEEE Technical Society Chapters in Ecuador.

The conference covers both theoretical and practical issues related to Communications, Computing, Control Systems, Industrial Electronics, Engineering in Medicine and Biology, Power and Energy, Robotics and Automation. Topics of interest, but not limited to, are:

SYSTEMS AND CONTROL

Adaptive Systems, Signal Processing, Embedded Systems, Fault Tolerant Systems, Identification, Predictive control.

INDUSTRIAL ELECTRONICS

Power Converters, Power semiconductors, Machines and drives, Power electronics in transportation systems, Power electronics applications.

COMMUNICATIONS

Internet of Things, Communications Systems Security, Green Communications, Wireless Communications, Optical Communications, Waveforms and Signal Processing, Access Networks and Systems, Cluster, Grid, P2P Cloud Computing, Satellite and Space Communications, Networking protocols and performance.

COMPUTER

Security and Privacy, Semantic Computing, Real Time Systems, Computational Intelligence, Multimedia Computing, Learning Technologies, Distributed Processing, Data Engineering and Data Science, Human Computer Interaction, Computer Vision.

POWER AND ENERGY

Transmission, Distribution, Power Generation, Power System Control & Operation, Reliability, Stability, Renewables, SmartGrids.

ENGINEERING IN MEDICINE AND BIOLOGY

Clinical Engineering, Telemedicine, and Health Care, Bioinformatics, Biomechanics, Biomaterials, Bioinstrumentation, Signal and Image Processing, Biophysics.

ROBOTICS AND AUTOMATION SYSTEMS

Automation, Automation in Logistics and Supply Chain Management, Sensors, Robotics, Assistive Technologies, System Integration, Sensor/Actuator Networks, Distributed and Cloud Robotics, Autonomous Vehicles, Human/Robot Interaction.

CEIS — SOFTWARE ENGINEERING INVITED SESSION

Software design, software building, software production processes, Quality, design methodologies, artificial intelligence applied to software engineering, education, process models, verification and validation, integration and operation, human aspects in software engineering, software project management.

Important Dates

- Full Paper Submission: 30 June 2016
- Acceptance Notification: 17 July 2016
- Final paper Submission: 30 July 2016
- Workshops & Tutorials: 10-11 October 2016
- Conference Dates: 12-14 October 2016
- Conference Publication

All submitted papers must comply with the IEEE Publication Guidelines in A4-Page format limited to 6 pages and will be subject to a strict review process prior to acceptance for publication. All thoughtfully peer-reviewed, accepted and presented papers will be then submitted for inclusion to IEEE Xplore Digital Library . Inclusion in IEEE Xplore is not an automatic process and IEEE reserves the right to reject any submissions that do not meet compliance.

More information and Details in <http://sites.ieee.org/etcm-2016>

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5.10. ACC Workshop: Perception, Control and Planning for Agile Autonomous Agents

Contributed by: Panagiotis Tsiotras, tsiotras@gatech.edu

A full day workshop entitled “Perception, Control and Planning for Agile Autonomous Agents” is organized by Panagiotis Tsiotras, Emilio Frazzoli, Evangelos Theodorou, and Sertac Karaman as part of the 2016 American Control Conference. The workshop will be held on July 05, 2016 at the Boston Marriott Copley Place, Boston, MA, USA.

The objective of this workshop is to report on recent advances in the area of perception and control to enable “aggressive agility” for autonomous agents. Agility and maneuverability requires sensing and execution at much shorter time scales than “normal” vehicles and systems. This is especially true for small and agile UGVs and UAVs, which may have limited on-board computational capabilities (CPU and memory). Furthermore, during extreme maneuvering, the vehicle motion is coupled with data acquisition and sensing. New algorithms and methodologies are needed to tackle this problem and these methodologies most likely will span diverse areas beyond standard control theory: machine learning, artificial intelligence, real-time algorithms, information theory, compressive sensing, etc.

Additional information is available at the conference website <http://acc2016.a2c2.org/workshops.html>

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5.11. IFAC CAMS Workshop on Marine Robotics

Contributed by: Vahid Hassani, Vahid.Hassani@ntnu.no

Workshop on Marine Robotics - 13th September 2016 - Trondheim, Norway

The organizing committee of the 10th IFAC Conference on Control Applications in Marine Systems (CAMS 2016) will be offering a pre-conference professional workshop on Marine Robotics. The workshop is hosted by Asgeir Sørensen, Thor Inge Fossen, and Gianluca Antonelli. The objectives of the workshop is to bring together PhD students for brainstorming and exchanging very recent research and developments in the field of marine robotics.

Topics covered in the workshop:

- 1) Introduction to Marine robotics (Platforms, Sensors, Integrated operations, and Autonomy Aspects)
- 2) Experiments from field trials with AUV and ROV
- 3) Kinematics and dynamics of submerged rigid bodies
- 4) Environment modeling (waves, current, wind)
- 5) Guidance & Control
- 6) Underwater intervention

The information about registration in the workshop will be soon posted at website of CAMS 2016

<http://www.ifac-cams2016.com>

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6. Positions

6.1. PhD: GIPSA-lab, France

Contributed by: Antoneta Iuliana BRATCU, antoneta.bratcu@gipsa-lab.fr

Open Ph.D. position on

Modeling and analysis of smart grids as cyber-physical systems

Grenoble Image Speech Signal and Control Systems Laboratory (GIPSA-lab) / Control Systems Department
- Grenoble, France

October 2016 - October 2019

Funding: doctoral fellowship granted within the framework of CY-PHY-GRID project funded by Université Grenoble Alpes (UGA)

Supervisors:

Associate Professor Antoneta Iuliana BRATCU - GIPSA-lab

Professor Yvon BESANGER - Grenoble Electrical Engineering Laboratory (G2Elab)

Context

Growing presence of renewable and spatially distributed energy sources, as well as the “intelligence” embedded in increasingly sophisticated measuring and control systems, engenders a mutation of distribution energy grids. Concept of “smart grid” is based on such features, which requires changes in the control paradigm. Entities within a smart grid - production units, loads, circuit breakers, power stations, etc. - can communicate with each other and exchange information by means of a communication network that overlays - or it is integrated into - the energy network. Imbrication between these two networks becomes increasingly important, leading to concepts such as critical infrastructures. Governing phenomena have non-unitary character - multi-domain, multi-physics - and take place at different time scales (multi-scale); this is a real challenge for stating a unitary control and modeling paradigm. This topic has been identified as a priority of the European research on smart grids [1].

The “smart grid” concept has determined development of new communication protocol standards [2]-[4]. Irrespective of the protocol used, the information flux through a communication network generally exhibits variable delays potentially responsible for unstable - or at least degraded - behavior of the power system. Moreover, certain asynchronous events - erroneous transmissions, collisions, loss of data packets, etc. - may also take place. Thus, a smart grid in interaction with its communication network exhibits hybrid dynamics. The energy grids have already been analyzed as complex interconnected systems and modeled as hybrid dynamic systems in a systematic context allowing to study their structural properties such as the stability [5]. Recent works have envisaged more general methods for modeling the communication protocols for large-scale systems [6].

Objectives

The global goal of this work is to obtain a unitary model of communication protocols which are most used for energy grids in interaction with these latter. Smart grids may then be characterized and the class of dynamical systems to which they belong can be identified. In this way, it will further be possible to state and solve the associated control problems in the formalism the most adequate to model type and desired performance.

A given micro-grid configuration will be considered, which contains classical generators, renewable generators and flexible loads. This configuration must be simple, but meanwhile sufficiently complex such as to allow pertinent generalizations. It is supposed that these entities can exchange information by means of an overlaying communication network. The control objective of interest here is to make these entities to cooperate in order to fulfil a common goal: either supplying the load if the micro-grid operates in the stand-alone mode (not connected to the main grid, otherwise called grid-off), or supplying ancillary services to the main grid (grid-on or grid-tied mode).

Description of information fluxes by continuous stochastic models, also able to capture discrete-event dy-

namics, is envisaged. Complexity is increased due to possible presence of variable delays. In particular, a dynamical model representing features and operation of IEC 61850 protocol will be obtained. A first unitary model that we have obtained in MATLAB / Simulink can be used here; it represents the interaction between information and energy layers within a smart grid [7].

Based on the defined case study, a general dynamic model able to describe sufficiently accurately the communication-energy interaction is aimed at. The resulting model is expected to belong to hybrid dynamical systems with variable delays, a quite general class of models. Finer characterization will thus be necessary. Then, necessary and/or sufficient conditions to guarantee structural properties will be sought for. Conclusions will serve as recommendations for designers of smart-grid-dedicated communication protocols, as well as starting point for suitable control law design.

Research profile

The candidate sought for must have a background in control systems theory, modeling and identification, as well as solid knowledge of electrical engineering (Bachelor or Master degree in Control Engineering or Electrical Engineering). Knowledge and skills in stochastic mathematics are appreciated. She/he should ideally have a double profile, having interests and knowledge in both energy systems and in communication protocols. Skills in MATLAB / Simulink are indispensable. Proficiency in English is required; proficiency in French is a plus. Good communication and team-working skills are appreciated.

Contact

Interested candidates are required to send their CVs, together with motivation letters and at least 1 (one) recommendation letter to

antoneta.bratcu@gipsa-lab.fr

yvon.besanger@g2elab.grenoble-inp.fr

by June 6th 2016.

References

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6.2. PhD: KU Leuven, Belgium

Contributed by: Wim Michiels, Wim.Michiels@cs.kuleuven.be

PhDs: KU Leuven, Belgium

At the Faculty of Engineering of KU Leuven there are two vacant PhD positions in the area of control and optimization of large-scale interconnected systems.

The aim of the first PhD project, in collaboration with TU Eindhoven, is to understand clustering mechanisms in networks of coupled dynamical systems and to develop methods and algorithms that allow to determine or predict the possible subdivisions into clusters, and assess their robustness and parametric dependence. We will also tackle the problem of practical partial synchronization, where within the cluster the states of the systems converge to each other up to some predefined tolerance. Such a robustified notion of synchrony plays an important role in most applications, where due to perturbations, heterogeneity in systems and coupling, exact partial synchrony is not possible.

The aim of the second PhD project, in collaboration with Ecole Centrale Lille, is to develop novel, decentralized control schemes for complex delay coupled systems. For large networks it is expensive, if not impossible, to control all systems individually, and centralized solutions are infeasible. Most of the approaches for decentralized control do not carry over to systems with time-delay. Furthermore, the underlying theoretical framework is not adapted toward complex systems where the overall dynamics are largely determined by the interactions. Hence a shift of the control paradigm is needed. Instead of tuning controller parameter, we focus on optimizing the topology of the network, i.e., we determine which systems need to interact in order to optimize a global objective in an efficient way.

The positions are in the framework of the project UCoCoS, funded by the European Commission and involving both academic and non-academic partners. Eligibility criteria, mobility requirements, and application instructions can be found at the website <http://ucocos-project.eu>

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6.3. PhD: CNRS, France

Contributed by: Carlos Canudas de Wit, carlos.canudas-de-wit@gipsa-lab.fr

PhD: CNRS, Grenoble, France.

PhD position: EVOLUTIONARY SCALE-FREE MODELS FOR LARGE SCALE COMPLEX NETWORKS

NeCS group (joint CNRS (GIPSA-lab)-INRIA team), in Collaboration with the University of Padova.

Supervisors: Carlos Canudas-de-Wit (CNRSmain supervisor), Sandro Zampieri (UDP co-supervisor).

Context: ERC-AdG Scale-FreeBack

TOPIC DESCRIPTION. This research proposal deals with the problem of setting up a suitable modelling framework for complex systems corresponding to large-scale networks. The original system is assumed to describe a homogenous network in which the node/link distribution of G gives a bell-shaped, exponentially decaying curve. Homogenous networks cover many critical systems of interest (such as road traffic networks, power grids, water distribution systems, etc.), but are inherently complex. Scale-FreeBack is elaborated on the idea that complexity can be broken down by abstracting an aggregated scale-free model (represented by a network with a power law degree distribution), by merging/lumping neighboring nodes in the original network. In that, super-nodes (nodes with a lot of connections) are created and represented by “aggregated” variables. Controlling only boundary inputs and observing only aggregated variables allows to cut-off the system complexity. The following questions will be addressed:

1) Defining the most suitable level of aggregation for the model. This boils down to defining and sizing the state-vector, the control inputs and outputs. A first question is how to define the right level of aggregation, and investigate new metrics trading quantifiers reflecting an optimal level of scalability (a suited node/link distribution) of the associated network graph, with other performance indexes reflecting the system's closed-loop operation.

2) The second question focuses on how the aggregation process, in addition to the scale-free property, will yield models consistent with the design of control and the observation goals. The aggregation process will have to include observability and controllability properties which are consistent with the evolutionary nature of scale-free aggregated models (aggregation process is evolutionary in the sense that the network changes and so the aggregated modules will change accordingly while preserving the scale-free properties).

3) Finally, innovative concepts such as peripheral controllability (i.e. controlling the boundary flows in a lumped node rather than controlling each single node separately), and energy-weighted controllability metrics (where controllability is qualified by assessing the energy costs as a function of the controllable nodes [Zamet-al'14]) will be extended in this project to the context of scale-free models. While only open loop metrics have been considered so far, we aim to propose new closed loop metrics also taking inspiration from road traffic networks application. Moreover we intend to extend these concepts to the estimation and monitoring by investigating the observability of aggregated networks. Finally, we will propose and investigate different new weak notions of controllability/observability in which the controllability/observability is determined with respect to a limited subspace (peripheral and/or sparse controllability/observability)

QUALIFICATION: knowledge and mathematical background in systems and control theory, Complex and/or networked controlled systems.

EMPLOYMENT AND CONTEXT: This full-time position for 3 years. The position will be open from Sept 2016 until filled. In our NeCS team at Grenoble, we offer a dynamical research environment with a strong activity in networked controlled systems. This PhD position is part of the large research project Scale-FreeBack ERC Advanced Grant 2016-2021. The ERC is hosted by the CNRS, and the project will be conducted within the NeCS group (which is a joint CNRS (GIPSA-lab)-INRIA team).

APPLICATIONS: Please follow instructions:

<http://www.gipsa-lab.grenoble-inp.fr/~carlos.canudas-de-wit/ERC.php>

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6.4. PhD: Technical University of Eindhoven, Netherlands

Contributed by: A. Pogromsky, a.pogromsky@tue.nl

Two open PhD positions hosted in Technical University of Eindhoven in the framework of UCoCoS project. Major challenges in science, society and industry are induced by the complexity of our hyper-connected world. Examples are the climate change, artificial interconnected systems whose dynamics are beyond our understanding such as the internet, the global banking system and the power grid. A demand of performance emerges at an unprecedented scale: collaborative sensors and robots so to ensure competitiveness of the production industry, better management of traffic flows, designing (de)synchronization mechanisms applicable in neuroscience, are examples illustrating the necessity to understand and control the dynamics of complex networks.

The objectives of the UCoCoS project are to create a control-oriented framework for complex systems, and to define a common language, common methods, tools and software for the complexity scientist. UCoCoS aims at i) creating a closely connected new generation of leading scientists, capable of designing network

structures and policies to affect the networks, and ii) initiating long-term partnerships and collaboration mechanisms leading to sustainable doctoral training. The UCoCoS approach builds on recent developments in three domains: control engineering, computer science, mechanical engineering. In the framework of UCoCoS there are six open PhD positions, two of them will be hosted in TU Eindhoven, The Netherlands. Every PhD researcher performs a cutting-edge project, strongly relying on the complementary expertise of three academic partners (KU Leuven, Ecole Centrale de Lille, and Eindhoven University of Technology) and benefiting from training by non-academic partners from three different sectors.

Two PhD positions are open in the Department of Mechanical Engineering, TU Eindhoven:

1. Analytical and numerical bifurcation analysis of delay-coupled systems. Complex systems can show very diverse behaviour, synchronized or partially synchronized motion being only few out of many possibilities. To explore the complex behaviour that can occur, bifurcation theory is essential, as this allows to characterise the behaviour that appears due to parameter variations. As such, it brings inside in very complex behaviour that is feasible near well-understood dynamical regimes, such as the synchronised state. A second motivation to investigate bifurcations in networked systems is to assess the robustness of the model to parameter variations and identifies structurally stable regimes. While a well-developed theory for bifurcations of nonlinear dynamical systems with delays exists, these results are restricted to low-dimensional systems, and cannot exploit the network structure.

2. Reduced modelling of large-scale networks. Reduced models of large-scale networks are essential for the control of large-scale networks. Challenges lie both in the representation of the communication structure, and in the identification of the subsystems in the network. This project focusses on modelling techniques for the control of large-scale networks, and, in particular, on the identification of the subsystems of the network. This step is decisive for the level of abstraction of the model. For example, neural mass models have proven effective to simulate specific aspects of electrical brain activity such as alpha-rhythms and epileptic patterns by identifying different populations of neurons, modelling the dynamics within the population with a few state variables. More detailed models describe each individual neuron in the human brain as a subsystem. A trade-off between the conflicting requirements of a low number of agents, and a low complexity of the individual agents is required, while ensuring that the essential elements of the dynamics are captured in the model.

Candidate profile: An ideal candidate has a MSc degree in engineering or applied mathematics, a strong background in control, optimization, an experience in software development (Matlab, C/C++) will be a bonus. Proficiency in English is a requirement.

The application procedure will be closed once an appropriate candidate is appointed.

The UCoCoS project and training network is funded by the European Commission under the H2020 program, as a Marie-Sklodowska Curie Actions ITN-EJD (Innovative Training Network- European Joint Doctorates). More information on the project, and application instructions can be found at <http://www.ucocos-project.eu>

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6.5. PhD: Gipsa-lab and Mines-ParisTech, France

Contributed by: Christophe PRIEUR, christophe.prieur@gipsa-lab.fr

PhD/PostDoc: Gipsa-lab, Grenoble and Mines-ParisTech, Paris (France)

PhD offer: Analysis and rejection of mechanical vibrations for drilling

Context:

Mechanical vibrations Non-Productive Time (NP), damaging or even failure of the device and decrease of

the average drilling velocity. In a context of overall cost reduction, operators are in need of non-intrusive strategies to limit or even suppress these vibrations. Control theory, enabling to analyze and control the drillpipe moves from the surface, offers an ideal framework to meet these needs.

Ph.D Objectives:

Physical phenomena at stake in the context of oil drilling are especially complex. First, interaction laws between the borehole and the drillbit are uncertain and intricate. Second, the physical length of the considered systems (several kilometers) implies the existence of mechanical waves propagation, which has to be explicitly taken into account in the modeling.

The first goal of this Ph.D will be to analyze the relative significance of these phenomena. Simulations and analysis of several dynamical modelings of variable complexities will be considered and compared in view of establishing one consistent with control design. Relevance of this modeling will be evaluated by comparison with experimental data from a test bench or field.

The second goal of this Ph.D will be the design of suitable control strategies enabling to limit structural vibrations. Among other possibilities, considered solutions include:

- Prediction-based controller for uncertain variable (state-varying) time-delay systems;
- Observer design using only measurements available at the surface of the well;
- Adaptive controller or observer to reduce the impact of modeling uncertainties.

Application:

The applicant should have solid notions of control theory and/or applied mathematics. Understanding of delay systems and/or partial differential equations is not mandatory but will be highly appreciated. Applications should be declared before June 15 and include a detailed resume.

Supervision:

The PhD thesis will be supervised by Delphine Bresch-Pietri (Gipsa-lab), Florent Di Meglio (Mines-ParisTech) and Christophe Prieur (Gipsa-lab).

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6.6. PhD/PostDoc: Eindhoven University of Technology, Netherlands

Contributed by: Paul Van den Hof, p.m.j.vandenhof@tue.nl

2 PhD and 2 Postdoc positions in “Data-driven modelling in dynamic networks”

In the control systems group of Eindhoven University of Technology, department of electrical engineering, there are open positions for two PhD students (four years) and two Postdocs (two year positions with possible extensions) in a new research project on system identification in dynamic networks. The project is an ERC Advanced Research project, led by Prof. Paul Van den Hof, and will comprise a total of 7 researchers.

Topics to be covered include, experiment design, topology and network identification, sensor and actuator optimization, identification for distributed control, algorithm and software development, and development of applications in high-tech domains (e.g. smart grids). We are looking for candidates with an excellent background in system identification, data analysis, machine learning, modelling and/or systems & control, and a strong drive towards fundamental research in a high-tech environment. Candidates are expected to be team players in an international environment.

Interested candidates should apply before June 20, 2016.

For more information see: www.pvandenhof.nl/sysdynet or contact Paul Van den Hof (p.m.j.vandenhof@tue.nl)

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6.7. PostDoc: Missouri University of Science & Technology, USA

Contributed by: Robert G. Landers, landersr@mst.edu

Missouri S&T has an opening for a post-doctoral position in additive manufacturing control working with Professors Doug Bristow and Robert Landers. The project involves the development of new algorithms for microstructure control in selective laser melting (powderbed) metal additive manufacturing. A Renishaw AM250 SLM machine, specially instrumented for control, is located at Missouri S&T for algorithm development and testing. The postdoc will collaborate with a multidisciplinary team of faculty and graduate students in heat transfer and materials science, as well as scientists and engineers at the Department of Energy National Security Campus and Renishaw. The project is funded by Honeywell Federal Manufacturing and Technologies.

The postdoctoral position is available immediately. The applicants must have a Ph.D. in Mechanical or Electrical Engineering (or closely related field), a strong background in control systems theory and/or applications, and excellent communication skills. Experience with manufacturing applications and multi-dimensional control (e.g., PDE control, Repetitive Process Control) are preferred.

Interested applicants should send their CV including references and a cover letter describing their interests and suitability to the position to Prof. Robert G. Landers (landersr@mst.edu).

Robert G. Landers

Professor, Dept. of Mechanical & Aerospace Engineering

Missouri University of Science & Technology

(573) 341-4586

194C Toomey Hall

Rolla, MO 65409

<http://web.mst.edu/landersr>

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6.8. PostDoc: Luxembourg Centre of Systems Biomedicine, Luxembourg

Contributed by: Jorge Goncalves, jmg@uni.lu

Postdoc (Research Associate) in Machine Learning, System Identification or Control Systems

The Systems Control Group (SCG) of the Luxembourg Centre of Systems Biomedicine (LCSB) has the following vacancy:

Description

The SCG specialises in dynamic modelling from time-series data of biological systems by developing methods using tools from theoretical control systems and machine learning. Hence, the group publishes papers on a wide range of journals, from IEEE Transactions on Automatic Control to PNAS and Science. Biological systems are dynamical in nature as molecular species evolve in time in response to internal or external regulations, perturbations or random fluctuations. The group is interested in understanding the complexity inherent to biological systems from a dynamical perspective, typically captured by differential equations or stochastic processes. Theoretically, we develop mathematical tools aimed at efficiently modelling and analysing biological data. Examples are tools to infer causal networks with guaranteed certificates, and systematic engineering control tools for synthetic biology design. Applied, we closely collaborate with experimental biologists to generate mathematical models, which offer new biological insights that can subsequently be tested experimentally, hence closing the loop between experiments and modelling. Examples range from understanding the role of cytoplasmic Ca²⁺ in plant circadian rhythms to modelling the natural history of Huntington and Parkinson's disease progression.

Your Role

The Systems Control Group seeks a highly skilled Postdoctoral Fellow (Research Associate). The project aims to develop mathematical tools to model continuous-time nonlinear dynamical systems from time-series data. It will also include application of these tools to model real biological data to generate new testable hypothesis. The Postdoctoral Fellow is expected to work together with Ph.D. students both at the LCSB and at the University of Cambridge.

Your Profile

To hold a Ph.D. degree in machine learning, signal processing, control systems, system identification or mathematics. Excellent working knowledge of English.

We offer

Full contract for 1 year with the possibility of renewal up to 5 years contingent on performance and availability of funding. A very competitive salary.

Further Information and online application at <http://emea3.mrted.ly/12551>

Applications should contain the following documents:

A detailed Curriculum vitae. A motivation letter. Please ask at least three references to email their confidential letters directly to Jorge Goncalves (jmg@uni.lu) within two weeks after submitting the application.

Review of applicants will begin immediately and will continue until the position is filled. For further information, please contact Jorge Goncalves (jorge.goncalves@uni.lu).

The University of Luxembourg is an equal opportunity employer. All applications will be treated in the strictest confidence.

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6.9. PostDoc: Clemson University, USA

Contributed by: Yongqiang Wang, yongqiw@clemson.edu

Applications are invited for doctoral and/or post-doctoral positions in the general area of dynamics and control of network systems. Competitive financial supports will be provided. Students with a strong background in systems and control and a clear interest in the general area of network systems are encouraged to apply. Specific areas of research include: - analysis of dynamical engineered or biochemical networks - power systems - hybrid systems - oscillator networks or synchronization. Clemson University is ranked 20th among national public universities by U.S. News & World Report (tie with Purdue University-West Lafayette and University of Maryland-College Park). It is described by students and faculty as an inclusive, student-centered community characterized by high academic standards, a culture of collaboration, school spirit, and a competitive drive to excel.

Clemson is located on Lake Hartwell in the foothills of the Blue Ridge Mountains, an area of outstanding natural beauty and temperate climate. It is 30 miles from Greenville, SC, a vibrant and growing city which provides many opportunities for entertainment, culture, and fine dining. Strong mathematical and analytic skills are desired.

Candidates with a demonstrated track record in one or more of the previous area(s) will be preferred. Interested students should send a short resume, along with representative relevant publications, if applicable, to yongqiw@clemson.edu

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6.10. PostDoc: Washington University in St. Louis, USA

Contributed by: ShiNung Ching, shinung@wustl.edu

Postdoctoral Opening: Control-theoretic analysis of brain network dynamics

Postdoctoral positions are available in the area of control-theoretic analysis of brain network dynamics at the Brain Dynamics and Control Group within the Department of Electrical and Systems Engineering at Washington University in St. Louis (St. Louis, MO, USA).

A specific focus is on investigating the link between systems-theoretic properties, such as reachability and controllability, to overt information processing and other functional objectives in neural circuits. That is, we seek to understand how the dynamics of brain networks may enable us to see, hear and think. In the pursuit of this goal, this project will involve the development of new control-theoretic analyses tailored to brain networks are multiple spatial and temporal scales. Thus, the project will have natural synergy with elements of network control theory, optimization and stability analysis. There will be opportunities to apply and validate the developed frameworks against multimodal human neural data, and the position will involve substantial interactions with experimental and clinical neuroscientists at the Washington University School of Medicine.

Candidates should have a background in the general areas of systems theory, control engineering, and/or dynamical systems modeling/analysis. Prior experience in neuroscience is not needed, but a general interest/curiosity about brain dynamics is a must!

Interested applicants should send a CV and brief description of interests and goals to Prof. ShiNung Ching (shinung@wustl.edu). Applications will be evaluated as soon as they are received, until the positions are filled. The starting date is flexible, but can be as early as the Summer of 2016.

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6.11. PostDoc: McGill University, Canada

Contributed by: Ahmad Haidar, ahmad.haidar@mcgill.ca

The Department of Biomedical Engineering at McGill University is seeking outstanding candidates for a Postdoc position. The successful candidate will develop a learning algorithm for an electromechanical artificial pancreas in type 1 diabetes. The artificial pancreas is a closed-loop system to regulate glucose levels. A model predictive control is already in place and has been extensively tested in human clinical trials, but it requires further development to handle more efficiently slow changes in insulin needs over time. The successful candidate will develop and implement a learning algorithm based on recursive state estimation methods, conduct extensive simulations, and lead the design and the conduction of a clinical trial to test their algorithm.

The successful candidate will have the opportunity to work with a multi-disciplinary team that includes researchers with backgrounds of endocrinology, control engineering, biomedical engineering, pediatrics, and computer science. This is a great opportunity for a highly motivated applicant who wants to utilize their expertise in control systems to tackle medical problems.

Desired Skills:

- Strong expertise in system control design, preferably in adaptive control or model predictive control. Desired expertise includes estimation algorithms, observers, Kalman filtering, and Bayesian
- Strong desire to work in a clinical setting.
- Strong programming skills.

Apply with your curriculum vitae to Prof. Ahmad Haidar (ahmad.haidar@mcgill.ca). The candidate will be supervised by Prof. Ahmad Haidar and Prof. Robert Kearney.

Please refer to <https://sites.google.com/site/ahmad7haidar/research> for more information on our research program.

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6.12. PostDoc: George Washington University, USA

Contributed by: Taeyoung Lee, tylee@gwu.edu

Post-Doc: Autonomous Aerial Exploration

George Washington University, Washington DC, USA

Flight Dynamics and Control Lab at the Department of Mechanical and Aerospace Engineering, George Washington University (<http://fdcl.seas.gwu.edu>) invites applications for one post-doctoral scientist position.

The main objective of the research is to develop motion planning and control of multiple aerial vehicles exploring an unknown area autonomously and cooperatively. The desired paths of the vehicles will be developed in an optimal fashion to maximize the information gain from the sensor measurements on those paths, while explicitly considering the sensor limitations such as the maximum sensing range and viewing angle. These will be illustrated by both numerical simulations and indoor flight tests with multirotor unmanned aerial vehicles.

Required qualification

- Ph. D in control system engineering, computer science or relevant fields
- Backgrounds in control, estimation, motion planning, mapping, and SLAM
- Experiences in flight experiments of multirotor UAV
- Expertise in C/C++, ROS, and multithread programming

The appointment will be for a period of 1 year, starting from Summer/Fall 2016, and it will be considered for extension at the end of the period based on the evaluation.

The application should consist of

- A motivation letter stating why the applicant is qualified to the research
- A complete CV with a full publication list
- List of three references

These documents should be combined into a single pdf file and sent to Prof. Taeyoung Lee (tylee@gwu.edu) with a subject "Post-doc application of Dr. <Name>." Please, send all of other inquiries to tylee@gwu.edu as well.

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6.13. PostDoc: University of Cambridge, UK

Contributed by: Guillaume Hennequin, g.hennequin@eng.cam.ac.uk

Postdoctoral Fellow in Computational Neuroscience

University of Cambridge, UK

We are seeking a highly creative and motivated postdoctoral fellow (research associate) to work in the group of Guillaume Hennequin at the Computational and Biological Learning Lab (<http://cbl.eng.cam.ac.uk>), Department of Engineering, University of Cambridge, on a circuit-level theory of motor control.

The group studies the dynamics of computation in brain circuits using methods from control theory, dynamical systems and machine learning (<http://hennequin.bitbucket.org>). This project involves a collaboration

with the group of Karel Svoboda at HHMI Janelia Farm (<http://www.janelia.org>); funding is available for extended visits to the Janelia Research Campus. We also have close interactions with the control theory group in Cambridge (Rodolphe Sepulchre, Tim O’Leary).

The successful candidate will have a strong analytical background and demonstrable interest in theoretical neuroscience. They should have or be close to completion of a PhD in computational neuroscience, physics, mathematics, computer science, machine learning or a related field. Previous experience in computational neuroscience is not required, but preference will be given to candidates with excellent programming skills, or expertise in neural network modelling, control theory, numerical analysis, dynamical systems theory, and machine learning.

The position is funded for two years, with an initial one-year appointment and an expectation of extension to another year given satisfactory performance. Salary depends on experience and is in the range £28,143 - £37,768 p.a.

Please direct your initial enquiries to Guillaume Hennequin <g.hennequin@eng.cam.ac.uk>

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6.14. PostDoc: University of Oxford, UK

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

Postdoctoral Research Assistant, Department of Engineering Science, University of Oxford

Grade 7: Salary in the range £30,738 - £37,768 p.a.

We seek a Postdoctoral Research Assistant to join the Control Engineering group in Engineering Science (central Oxford). The position is funded by EPSRC and is fixed-term for up to 36 months.

This post is at the interface of Synthetic Biology and Control Engineering. You should have a good first degree in engineering or mathematics and have completed or about to complete a doctorate in control engineering/dynamical systems or mathematical biology. A good publication record commensurate with your stage of career is expected. You must have the organisational skills and initiative to carry out independent research and be able to work as part of an interdisciplinary team. Experience of developing mathematical algorithms and simulations, in modelling biological systems and in the analysis and design of feedback control systems is essential.

The successful candidate will benefit from an international collaboration with MIT, ETHZ, the Caltech and KAIST as well as Microsoft Research, Cambridge and will become part of the growing and flourishing Synthetic Biology community in Oxford. The work will be partly mathematical, partly computational and will involve close interaction with researchers in the biological sciences.

Informal enquiries may be addressed to Professor Antonis Papachristodoulou (email: antonis@eng.ox.ac.uk). Further information can be found at www.eng.ox.ac.uk/jobs/home

You will be required to upload a covering letter/supporting statement, including a brief statement of research interests (describing how past experience and future plans fit with the advertised position), CV and the details of two referees as part of your online application.

Only applications received before 12.00 midday on 8 July 2016 can be considered.

The Department holds an Athena Swan Bronze award, highlighting its commitment to promoting women in Science, Engineering and Technology.

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6.15. PostDoc: UC San Diego, USA

Contributed by: Miroslav Krstic, krstic@ucsd.edu

Postdoctoral position at UC San Diego

A postdoctoral position is open (with the intent of it being filled as soon as possible) at University of California, San Diego, under Professor Miroslav Krstic, on the topic of control of large sensorless electric motor drives in collaboration with General Atomics, a major local San Diego company. The research challenges include adaptation and the achievement of stable operation in the face of significant time-varying delays. The anticipated industrial impact is in oil/gas industry.

The appointment is for one year, with the possibility of extension subject to availability of funds and strong performance. The salary is in accordance with the University of California postdoctoral salary scale, which is anticipated to be in the mid-to-high \$40K's range for the 2016-2017 academic year.

Eligibility and requirements. Only candidates who are permanent residents of the United States can be appointed for this position. The expected experiences, in addition to strong training in control systems, include training or at least good understanding of the modeling and control of electric machines and power electronics.

UC San Diego's Cymer Center for Control Systems and Dynamics houses one of the world's premier research groups and training programs in control engineering.

Interested candidates should contact Professor Krstic (krstic@ucsd.edu; <http://flyingv.ucsd.edu>) and include their detailed CV, information on their current and near-term job status, US immigration/residency status, and a list of references.

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6.16. PostDoc: University Grenoble Alpes, France

Contributed by: Alain KIBANGOU, alain.kibangou@ujf-grenoble.fr

An open post-doc position is available in Grenoble on 'System Theory Approach for Privacy preserving Cyberphysical systems'

Start: September 2016

Duration: 12 months

The details of the offer can be found here:

<http://necs.inrialpes.fr/media/documents/openings/PostDocs/2016-Privacy-Postdoc.pdf>

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6.17. Lecturer: Glasgow Caledonian University, UK

Contributed by: Geraint Bevan, geraint.bevan@gcu.ac.uk

Lecturer in Control Engineering

Glasgow Caledonian University

School: School of Engineering & Built Environment

Department: Instrumentation, Control and Analytical Sciences

Grade: 7

Salary Scale: £40,082 - £46,414 per annum

Contract: Full-time/Open-Ended

Closing Date: 15th June 2016

The School of Engineering and Built Environment wishes to appoint a Lecturer in Control Engineering to join the Instrumentation, Control and Chemical Sciences subject group. Control Engineering is taught in a wide range of our undergraduate programmes and at all levels in Mechanical Engineering and Electrical Power Engineering. Additionally, our successful postgraduate programmes in Applied Instrumentation and Control attract high quality applicants from around the world and are offered in a distance learning mode. Our focus on both theoretical and practical control engineering ensures that our graduates are well equipped for employment in many industries.

We seek a control engineer with experience in the practical implementation of control systems, preferably in an industrial environment, to join our subject group. Your research interests should align with the University research theme of Sustainable Environments or Digital Health and in particular complement one of the research areas of existing academic staff in the group in diagnostic systems and sensors research, or design, process and manufacturing research or energy and power systems research.

The successful candidate will be part of a vibrant team contributing to all levels of teaching and research within the subject area. Our laboratories are extremely well equipped to ensure that teaching and research in control engineering is well supported.

You will have at least a Master's degree in a control engineering area, experience of the practical implementation of control systems and a strong commitment to the enhancement of teaching, student experience and progression. A current and appropriate record of research, innovation in industry, or knowledge exchange that compliments the existing themes of the University is essential.

Further details on this post are available by contacting Dr Sheila Smith, Assistant Head of Department at a.s.smith@gcu.ac.uk or on 0141 331 3552

The School of Engineering and Built Environment is committed to promoting equality and diversity, including the Athena SWAN charter for promoting women's careers in STEMM subjects (science, technology, engineering, mathematics and medicine) in higher education.

The University offers a range of benefits including opportunities for professional development, family friendly policies, cycle to work scheme, child care vouchers and onsite childcare facilities.

Please note that the appointment will be made on the first point of the salary scale (unless by exception). To apply for this role please visit:

<https://www.myjobscotland.gov.uk/education/glasgow-caledonian-university/jobs>

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6.18. Faculty: Southern Illinois University Carbondale, USA

Contributed by: Arash Komae, akomae@siu.edu

Faculty Position

Department of Electrical and Computer Engineering

SIU Carbondale

The Department of Electrical and Computer Engineering invites applications for one tenure track faculty position, at the Assistant Professor level, in the general area of Power Systems, Electric Energy Conversion, and Power Electronics. Applicants must have at the time of appointment a Ph.D. degree in Electrical Engineering, Computer Engineering or a related field, a potential for excellence in teaching and a potential for high quality research documented by technical publications in the area of Power Systems, Electric Energy Conversion, or Power Electronics. PhD candidates may be considered if all degree requirements will be completed by December 31, 2016. If all requirements for the Ph.D. are not completed

by that date, a term, non-tenure track appointment may be offered in accordance with University policy (http://policies.siu.edu/personnel_policies/chapter2/ch2-faps/conting.html). This position is contingent upon available funding.

The Department provides support and excellent opportunities for the development of new faculty. Applicants should submit a resume, a list of three references with contact information, a statement regarding the specific area of interest and a Statement of Goals to: Chair, Department of Electrical and Computer Engineering, Mail Code 6603, SIU Carbondale, 1230 Lincoln Drive, Carbondale, Illinois 62901 or email eceadmin@siu.edu. Consideration of applications will begin on August 15, 2016 and will continue until position is filled. Effective date of employment is January 1, 2017.

SIU Carbondale is an affirmative action/equal opportunity employer of individuals with disabilities and protected veterans that strives to enhance its ability to develop a diverse faculty and staff and to increase its potential to serve a diverse student population. All applications are welcomed and encouraged, and will receive consideration.

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6.19. Research Scientist: University of Vermont, USA

Contributed by: Mads Almassalkhi, malmassa@uvm.edu

The Electrical Engineering department at the University of Vermont is seeking to hire a Research Scientist for an ARPA-E NODES-funded project. The Department of Energy's announcement can be found at: <http://arpa-e.energy.gov/?q=news-item/department-energy-announces-12-new-projects-accelerate-technologies-improve-efficiency>

The ideal candidate is an entrepreneurial and creative problem solver who has prior experience with power transmission or distribution system analysis and/or a strong analytical background in mathematics, control theory, optimization, communication theory, and/or numerical methods. Candidates who have experience working with real-time, hardware-in-the-loop environments (e.g., embedded systems, Arduino, OPAL-RT, RTDS) are particularly encouraged to apply. The project requires close collaboration with U.S. academic and industry partners. Funding is available for up to three years. A Ph.D. in a related field is preferred. Salary is competitive and commensurate with experience.

Interested candidates should apply through the UVM website: www.uvmjobs.com (search for position # 00024108 or posting # S684PO). Application packages should include a CV and a cover letter outlining the candidate's interests and listing references. Any questions about the opening can be directed to Dr. Mads Almassalkhi ([malmassa \[at\] uvm \[dot\] edu](mailto:malmassa@uvm.edu)). Ideally the candidate would start in August 2016, but some flexibility is possible.

<https://www.uvmjobs.com/postings/19845>

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