



INDUSTRY CLUB

industryclub.control.lth.se // newsletter No 6



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The Automatic Control Industry Club: Exploring, Expanding and Applying Control Technology

Welcome to Newsletter No 6, December 2022

In the newsletter we present interesting new developments at our department, and report about advances in the field of automatic control, as well as opportunities for collaborations.

We welcome you to be a part of this!

Industry Club

The Industry Club is an initiative to build an ecosystem around the Department of Automatic Control at Lund University. We want the Industry Club to be a forum for sharing ideas and getting feedback on the research we do. We want to reach out to the industry and other organizations to collaborate on new projects and initiate new research collaborations. The interface of the Industry Club will be a recurring newsletter, a webpage, and online and live events.

Highlights from the department

Interesting topics are being discussed on a daily basis at the department. Here are a few examples of recent topics that we would like to highlight.

- *Master theses.* Almost every home has a heating system, regulating temperature to keep its inhabitants comfortable. But how precise does this regulation need to be? Most people have a range of temperatures that they are comfortable with, meaning there is flexibility in exactly how and when the heating system is used. And this flexibility - provided it can be predicted - can be exploited to smooth out the inevitable imbalances in supply and demand when uncertain renewable energy sources, such as wind, are generating power. In conjunction with emulate.energy, masters thesis students Johan Fant and Gustav Warnström investigated the use of machine learning methods to predict this flexibility, with a view to enhance and improve power grid stability. Read more about the work at this [link](#).
- *Control Seminar Series:* Monthly seminars (typically on the last Thursday of every month)

are being held in our department where eminent faculties from all around the world visit us and deliver a seminar fostering new research collaborations. Following the seminar, the visiting faculties will have one-on-one meetings with our department personnel to form new research collaborations. Following the lecture, the recorded zoom video shall be uploaded on department's official YouTube channel. So far, Dr. Frank Allgöwer, Dr. Richard Murray, Dr. Steffi Knorn, and Dr. Lars Nielsen have graced us with their visit and delivered their respective control seminar series lectures. Seminar responsible: Venkataraman Renganathan Contact [Email](#), [Youtube Link](#)

- *Match making event.* A match-making event was held at our department on November 3rd, where students interested in master thesis projects met with companies proposing projects. Around 80 students and 20 persons from 14 companies participated. This was our second annual event where we invite industry participants for networking and discussions about topics of mutual interest.
- *Industry Club event* – Save the date! Please also note in your calendars that the next Industry Club Day is planned for March 23, 2023. This will be our second annual event where we invite industry participants for networking and discussions about topics of mutual interest.

Highlights from the control world

We frequently attend control conferences, events and meetings around the globe. Below you'll find a glimpse of what we consider the most valuable take-aways.

- *MTNS.* The 25th International Symposium on Mathematical Theory of Networks and Systems took place in Bayreuth, Germany, on September

12-16. Many topics were discussed, and, as one example, several sessions discussed on Port-Hamiltonian systems, where models with partial differential equations were discretized in ways that preserve properties of the dynamics, such as conservation laws.

- *CDC 2022 - Cancun, Mexico.* Excited researchers and practitioners gathered in Cancun to partake in this year's conference on decision and control. For many, this was their first in-person conference since the pandemic's start, and the participants had much to discuss. The conference started with nine crowded control, learning, and optimization workshops. On everybody's mind was the intersection between learning and control, with several invited sessions throughout the week. Distributed optimization, learning and control, and estimation and control of infinite-dimensional systems also garnered much attention. This year's Bode lecture was delivered by David Hill on power systems dynamics and control. He talked at length about his stay at the department at Lund University as a guest professor and his work with Sydkraft and Vattenfall.

Upcoming opportunities

Interesting topics are being discussed daily at the department. Here are a few examples of recent topics that we would like to highlight.

- *Hosting an industrial postdoc?* On Jan 16, WASP opens the first call for industrial postdocs. An industrial postdoc is a person with a PhD who conducts industrially motivated research in the context of a collaboration between a company and a university research group. The industrial postdoc instrument is primarily aimed at recently graduated PhDs who are considering a career as an industry researcher or at PhDs who are already employed at a company and engaged in research tasks. The duration is two years and the industrial postdoc is 100% employed by the company. The total grant over two years is 2.2 Mkr, where 300 000 kr is dedicated to the university host for operational costs and 1.9 Mkr is dedicated to the company for partial funding of salary etc. For SMEs an additional amount is granted and the total grant over two years is 2.7 Mkr. The call closes on April 7. Contact us already now if you are interested to learn more. More information will soon be available on the [homepage of WASP](#).

- *Hosting an industrial PhD student?* The next call to apply for funding for WASP industrial PhD stu-

dents will open on Jan 16 and close on April 7. This gives companies a chance to let a suitable employee become a WASP-funded PhD-student at our department. A win-win situation for our department, as well as your company. Contact us already now if you are interested to learn more. More information will soon be available on the [homepage of WASP](#).

- *ELLIIT Tech Talks.* The strategic research area ELLIIT has recently produced a series of videos about digitalization and societal challenges from an ICT perspective with Johan Wester as moderator. A new theme video will be published every other Tuesday until the 21st of March 2023. The videos are available from [ELLIIT](#) and YouTube. After an introduction to ELLIIT Tech Talks, the following-topics covered are: Industry 4.0, AI (large-scale algorithms, ML, deep learning, and XAI), Intelligent assistants and tools, Mobile processing architectures and devices, Next-generation software technology, Big data and network science, Design for security, privacy, and Trust, Autonomous vehicles and robots, Next-generation software technology, Digital business models and legal aspects, Communications and networks beyond 5G (sensors, IoT, and cloud).



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