

Preliminary program for PhD Workshop @ ISY 2022 on 23 August

Place: Ada Lovelace, building B, Campus Valla

8:20—8:30 Opening and welcome (host *Mark Vesterbacka*)

8:30—9:30 Oral session: Where are we going? (chair *Ema Becirovic*)

Sequential fusion and outliers detection after quantifying the uncertainty in the prediction of neural networks

Magnus Malmström

On the convergence of a random actions model in opinion dynamics

Olle Abrahamsson

A tightly-integrated magnetic-field aided inertial navigation system

Chuan Huang

Coffee

9:45—11:00 Poster session: High-capacity communication (chair *Unnikrishnan Kunnath Ganesan*)

Multi-agent policy optimization for pilot selection in delay-constrained grant-free multiple access
Jianan Bai

Matrix inverse hardware control unit for vector processors

Olle Hansson

An architecture for grant-free random access massive machine type communication using coordinate descent

Mikael Henriksson

High-performance digital-to-analog converters

Oscar Andres Morales Chacon

Reconfigurable FIR lowpass equalizers

Oksana Moryakova

Linearization of weakly nonlinear systems using one-layer convolutional neural networks

Deijany Rodríguez Linares

Is cell-free massive MIMO the next-gen technology?

Zakir Hussain Shaik

Overall complexity certification of mixed-integer quadratic programming

Shamisa Shoja

Design and construction of a multi-port beamsplitter based on few-mode-fibers

Daniel Spegel-Lexne

11:00—12:00 Oral session: On the road (chair *Javad Bagheri Asli*)

Battery integrated modular multilevel converters for automotive applications

Arvind Balachandran

Methods of improving road slope data using multiple measure sequences

Oskar Lind Jonsson

Neural ODEs and uncertainty estimation for vehicle trajectory prediction

Theodor Westny

Lunch break

- 13:00—14:00** Oral session: In control? (chair *Ziya Gülgün*)
Towards real-time certified linear MPC
Daniel Arnström
Building automation and control system (BACS) forensics with event-based timelines
Johnny Bengtsson
Quantum random number generation with guaranteed privacy
Joakim Argillander
- 14:00—15:15** Poster session: Driven by data (chair *Frans Skarman*)
Towards automating high-capacity transport vehicles
Abhijeet Behera
Diagnostics and supervision of dynamically configurable battery systems
Fatemeh Hashemniya
On a traveling salesman problem with dynamic obstacles and integrated motion planning
Anja Hellander
Planner for advanced driver assistance
Carl Hynén
Use of structural models to derive neural network structure
Arman Mohammadi
Robustness of federated learning systems
Daniel Pérez Herrera
Distributed system identification
Yannick Strocka
Motion-planning of autonomous vehicles using MPC
Jian Zhou
State estimation using marginalized particle filters
Jakob Åslund

Coffee

- 15:30—16:30** Oral session: Back on track (chair *Yonatan Kifle*)
Direct link interference suppression for bistatic backscatter communication in distributed MIMO
Ahmet Kaplan
Auditory attention decoding: a key to understand how the brain solves the cocktail party problem
Johanna Wilroth
A new framework for the integration of intra-cellular data in systems biology
Alberto Zenere

Party

- 17:00** Best presentation awards ceremony
(jury *Robert Forchheimer, Robert Hägglund, and Robert Malmkvist*)