

Final 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

MMSE-Optimal Sequential Processing for Cell-Free Massive MIMO With Radio Stripes

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 Malmqvist*)