

Dissertation press release

13.11.2020

Signal Recovery from Inaccurate Measurements

Title of the dissertation	Recursive Smoother Type Variable Splitting Methods for State Estimation
Contents of the dissertation	In this dissertation, numerical methods are proposed for solving state estimation problems. The estimation problem is cast as a statistical inverse problem for recovering the original time series from inaccurate measurements, and it naturally arises in a wide range of applications such as target tracking, inertial navigation, robotics, and tomographic reconstruction. For example, one practical application is trajectory reconstruction, where the position and velocity of a moving target can be captured by sensors. In presence of many sudden stops (i.e., real velocities are zero), it is interesting to obtain an accurate or physically reasonable estimate. Another application is ship tracking with the exploitation of the trajectory geometry. The main contributions of this study are to develop novel optimization methods and establish the theoretical results.
Field of the dissertation	Automation, Systems and Control Engineering
Doctoral candidate	Rui Gao, M.Sc.
Time of the defence	04.12.2020 time 12:00 – 16:00
Place of the defence	Online at https://aalto.zoom.us/j/67182642695 and F175a luontosali 1, Otakaari 3, 02150 Espoo
Opponent	Professor Fredrik Gustafsson, Linköping University, Sweden
Custos	Professor Simo Särkkä, Aalto University School of Electrical Engineering, Department of Electrical Engineering and Automation
Electronic dissertation	http://urn.fi/URN:ISBN:978-952-64-0144-7
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