

Luka Petrović

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RESEARCH EXPERIENCE

SEP. 2017 - PRESENT

Research and teaching assistant @ UNIZG-FER

Conducting research in robotics, especially trajectory optimization methods for robot motion planning in high-dimensional configuration spaces. My research relies on insights from stochastic optimization, batch state estimation and continuous stochastic processes.

MAR. 2018 - JUL. 2019

Researcher @ ICENT

Developing cyber-physical middleware for a mobile robot platform in the scope of a Horizon 2020 Innovation Action project *Logistics for Manufacturing SMEs (L4MS)*.

OCT. 2018 - NOV. 2019

Visiting researcher @ KIT

Researching robot motion planning methods in collaboration with Intelligent Process Automation and Robotics (IPR) laboratory led by prof. Björn Hein at Karlsruhe Institute of Technology (KIT).

EDUCATION

- 2017-NOW **Ph.D candidate, Robotics**
UNIVERSITY OF ZAGREB
Laboratory for Autonomous Systems and Mobile Robotics (LAMOR)
- 2015-2017 **M.Sc, Electrical Engineering and IT**
UNIVERSITY OF ZAGREB
Graduated with high honors (top 3%)
- 2012-2015 **B.Sc, Electrical Engineering and IT**
UNIVERSITY OF ZAGREB

AWARDS AND ACHIEVEMENTS

- 2017 **Bronze Plaque "Josip Lončar"**
FACULTY OF ELECTRICAL ENGINEERING AND COMPUTING, UNIVERSITY OF ZAGREB
Awarded to the top 1% students during graduate studies.
- 2017 **Scholarship for academic excellence**
UNIVERSITY OF ZAGREB
Awarded for outstanding academic achievement.
- 2016 **Rector's award**
UNIVERSITY OF ZAGREB
Awarded for outstanding student research thesis titled 'Decentralized control of the multi-agent robotic system'.

SKILLS

- SOFTWARE MATLAB, ROS, Latex, Python, C++, Simulink, Git, Linux
- ENGINEERING Motion planning, Control theory, Estimation theory, Machine learning, Deep learning
- LANGUAGES Croatian (native), English (C1), German (A2)

PUBLICATIONS

under review @ IAS 2020

Online Multi-Sensor Calibration Based on Moving Object Tracking

under review @ IAS 2020

Singularity Avoidance using Riemannian Geometry

under review @ RAS

Cross-Entropy based Stochastic Optimization of Robot Trajectories using Heteroscedastic Continuous-time Gaussian Processes

under review @ IEEE T-RO

Temporal and Extrinsic Multisensor Calibration via Gaussian Processes Moving Target Tracking

accepted @ IFAC WC 2020

Gaussian Processes Incremental Inference for Mobile Robots Dynamic Planning

arxiv.org/abs/1908.02963 @ IROS 2019

Fast Manipulability Maximization Using Continuous-Time Trajectory Optimization

10.1016/j.ifacol.2019.11.055 @ WROCO 2019

Open Platform Based Mobile Robot Control for Automation in Manufacturing Logistics

10.1109/ECMR.2019.8870970 @ ECMR 2019

Stochastic Optimization for Trajectory Planning with Heteroscedastic Gaussian Processes

10.1016/j.ifacol.2018.11.535 @ SYROCO 2018

Multi-agent Gaussian Process Motion Planning via Probabilistic Inference

10.1109/EDPE.2017.8123230 @ EDPE 2017

Self-learning Model Predictive Control Based on the Sequence of Controllable Sets

TEACHING ASSISTANT

- UNDERGRADUATE Computer-controlled systems (2017-now), Introduction to systems and automatic control (2017-2019), Computer architecture 1 (2018), Laboratory and skills - Matlab (2018)
- GRADUATE Machine learning (2019-now)

OTHER

- SERVICE **Reviewer for journals:** IEEE Access, IEEE RA-L
Reviewer for conferences: IROS, ECC, IFAC WC, IFAC WROCO
- MEMBERSHIPS IEEE Student member