Dejan **Milojevic**

POSTDOCTORAL RESEARCHER IN ROBOTICS AT ETH ZÜRICH

Zurich, Switzerland

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Education

ETH Zürich *May 2019 - June 2024*
Doctor of Science in Mechanical Engineering (Robotics) *Zurich, Switzerland*
- Conducted research at the co-design of mobile robots.
- Advised by Prof. Emilio Frazzoli, Institute for Dynamic Systems and Control (IDSC), ETH Zürich.
- Head TA for Control Systems II, an undergraduate course with over 300 students.

Stanford University *April 2018 - October 2018*
Master's Thesis *Stanford, CA - USA*
- Researched and designed novel control algorithms for large fleets of self-driving vehicles which operate as a shared service, e.g. Uber or Lyft.
- Carried out under the supervision of Prof. Marco Pavone and Prof. Mauro Salazar.

ETH Zürich *September 2016 - October 2018*
Master of Science (MSc) - Mechanical Engineering - Focus: Control Systems *Zurich, Switzerland*
- Conducted a semester project in *Optimal Route Planning* with Prof. Christopher Onder to optimize depot runs of electric buses.

ETH Zürich *September 2012 - May 2017*
Bachelor of Science (BSc) - Mechanical Engineering - Focus: Mechatronics *Zurich, Switzerland*
- Conducted a Bachelor's thesis in creating PEM electrolysis models for hydrogen production with Prof. Christopher Onder.

Experience

ETH Zürich *September 2024 - Present*
Postdoctoral Scholar *Zürich, Switzerland*
- Postdoctoral scholar in the group of Prof. Emilio Frazzoli at the Institute for Dynamic Systems and Control.
- Conducting research in co-design of robots, perception, decision-making, and control.

Empa *May 2019 - June 2024*
Doctoral Researcher *Dübendorf, Switzerland*
- Tested sensor behavior of autonomous driving vehicles in different environments.
- Conducted research in the field of sensor selection and perception guarantees in automated driving.
- Spearheaded project operations and stakeholder presentations for the Automated Driving Sensor Testing Vehicle project with partners including ASTRA, AXA, Embotech, ETH Zürich, Lexus, METAS, Orthotec and TCS.

Vay *December 2018 - April 2019*
Software Engineer *Berlin, Germany*
- Built technology to remote control cars in the real world using latest developments in autonomous technologies and video streaming.

ETH Zürich *September 2017 - March 2018*
Research Assistant *Zurich, Switzerland*
- Developed a Java application to manage energy usage for electric buses with Prof. Christopher Onder in the Institute for Dynamic Systems and Control.

Megasol Energie AG *April 2016 - September 2016*
Industrial Internship *Deitingen, Switzerland*
- Automated part of the solar panel manufacturing process by installing a KUKA robotic arm to perform a tedious and difficult task.

Invited Talks

Massachusetts Institute of Technology (MIT) *October 2024*
Co-design of Mobile Robots - Integrating Perception Systems and Motion Planning for Task Specific Optimization *Cambridge, MA, USA*

Zurich University of Applied Sciences (ZHAW) *January 2024*
Sensorik für automatisiertes Fahren @ Empa *Dübendorf, Switzerland*

RFA Energy, Resources and Emissions Colloquium *September 2023*
Sensor Selection and Perception Validation in Automated Driving *Dübendorf, Switzerland*

Swiss Association for Autonomous Mobility (SAAM) Stream Technology Meeting *May 2023*
Sensor Selection and Perception Validation in Automated Driving *Zurich, Switzerland*

Fachveranstaltung Society of Automotive Engineers (SAE) -Switzerland *October 2022*
Automatisiertes Fahren *Dübendorf, Switzerland*

SCCER Mobility Webinar *March 2020*
Sensor testing and perception guaranties in automated driving *Zurich, Switzerland*

SCCER Mobility Annual Conference *September 2019*
Automated Driving Sensor Testing Vehicle *Zurich, Switzerland*

Awards

Empa PhD Symposium 2021 *January 2021*
Best Scientific Video Award *Switzerland*
Empa PhD Symposium aims to provide PhD students with a platform to showcase their research and to receive feedback on their ongoing research.

FISITA *May 2018*
FISITA Travel Bursary *Switzerland*
The FISITA Travel Bursary provides financial support to high-caliber students who intern in automotive companies and research institutions overseas.

Skills

Programming	Python, Java, C/C++, Bash, SQL
Engineering Tools	Docker, ROS, Blender, MATLAB, Simulink, CAD (Inventor and Siemens NX), Illustrator
Learning & Data Science	PyTorch, TensorFlow, NumPy, Pandas, Seaborn, Matplotlib, PostgreSQL

Languages

Native German, Serbian **Fluent** English **Novice** French, Russian

Extracurricular Activity

President and board member of the UZH student organization Verein Serbischer Studierender	*Jan. 2020 - Dec. 2022*
Coach and Player of Schindler Group's Soccer Club	*September 2012 - May 2018*
Student at the EC Language School, Brighton UK	*May 2012 - July 2012*
Mandatory Swiss Military Service	*June 2011 - April 2012*
Singer in the Lucerne Boys Choir	*August 1999 - May 2011*
Soccer Player for Lucerne SC	*August 1999 - June 2011*

Service

Reviewing	IROS: 2021, 2022.
Workshop Organization	3rd Workshop on Compositional Robotics: Mathematics and Tools, ICRA, London, UK.
Funds	Innovedum Fund, ETH Zürich, Zurich, Switzerland.

Publications

International Peer-Reviewed Conference Proceedings

Co-design of Embodied Intelligence: A Structured Approach
Gioele Zardini, Dejan Milojevic, Andrea Censi, Emilio Frazzoli
2021 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2021

Model Predictive Control of Ride-sharing Autonomous Mobility-on-Demand Systems
Matthew Tsao, Dejan Milojevic, Claudio Ruch, Mauro Salazar, Emilio Frazzoli, Marco Pavone
2019 International Conference on Robotics and Automation (ICRA), 2019

Articles in Peer-Reviewed Journals

Resource-Efficient Task-Driven Co-Design of Perception and Decision Making in Autonomous Robots
Dejan Milojevic, Gioele Zardini, Miriam Elser, Andrea Censi, Emilio Frazzoli
Submitted to IEEE Transactions on Robotics *(2024). 2024*

Sensing and Perception in Automated Driving
C Hohl, D Milojevic, M Elser
Autonomes Fahren Ein Treiber zukünftiger Mobilität *(2022) p. 64. 2022*

Other contributions

Automated Driving Sensor Testing Vehicle
C Hohl, D Milojevic, M Elser, J Zgraggen, N Vulin
Forschungsprojekt ASTRA 2019/004 auf Antrag des Bundesamtes für Strassen (ASTRA), 2021

Theses

Dejan Milojevic. "Co-design of Mobile Robots - Integrating Perception Systems and Motion Planning for Task Specific Optimization". PhD thesis. ETH Zürich, 2024.

– "Ride-sharing Autonomous Mobility-on-Demand - Model Predictive Control with MATSim Simulation Case Studies". MA thesis. ETH Zürich, 2018.

Andyn Omanovic, Dejan Milojevic. "Optimal Route Planning - Optimize Depot Runs of Electric Buses in Public Transportation". ETH Zürich, 2017.

Dejan Milojevic. "Comparison and Evaluation of PEM Electrolysis Models for Hydrogen Production". ETH Zürich, 2016.