

# JELENA TRISOVIC

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👤 JELENA TRISOVIC

*Final-year PhD candidate with expertise in **perception-based control**, combining **control theory** and **computer vision** to build **safe and reliable autonomous systems**. My work also focuses on translating insights from control into **learning-based methods**, advancing their understanding and interpretability. I am seeking an internship opportunity to apply and further strengthen my expertise in **machine learning**, with a particular focus on integrating my skills in computer vision and sequence models within **multi-modal settings**.*

## EXPERTISE

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- State-space sequence models
- Computer vision
- Model predictive control
- Simultaneous Localization and Mapping (SLAM)
- Intelligent autonomous systems & robotics
- Audio processing

## EXPERIENCE

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### Doctoral fellow

Zurich, Switzerland

ETH AI Center, advised by Prof. M. Zeilinger and Prof. M. Pollefeys

September 2021 - November 2026 (tbd)

- Applied control-theoretic tools to analyze deep sequence models (state space models, transformers).
  - ▷ **Tech:** PyTorch, JAX
- Designed and experimentally validated uncertainty-aware, safe perception-based control for autonomous racing.
  - ▷ **Tech:** Python, C++, ROS, Blender
- Developed a SLAM method with explicit uncertainty guarantees for robust perception in safety-critical settings.
  - ▷ **Tech:** Python, Casadi

### Instructor

Zurich, Switzerland

Girls Code Too

September 2021 - May 2022

- Instructed Python coding classes, with a special focus on algorithms and problem-solving skills, aimed at preparation for the Swiss Informatics Olympiad.

### Research in Industrial Projects for Students

Los Angeles, USA

Institute for Pure and Applied Mathematics, University of California Los Angeles

Summer 2017

- Researched automatic conflict detection in police body-worn camera audio, developing a novel method combining adaptive noise removal, machine learning-based speech segmentation, and conflict measures from phrase repetition and intensity, resulting in an IEEE ICASSP 2018 [publication](#).

## EDUCATION

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### M.S. in Electrical Engineering and Information Technology

Zurich, Switzerland

Swiss Federal Institute of Technology (ETH), GPA: 5.80/6.00 (with distinction)

2018 - 2021

*Thesis:*

▷ Global Localization in Semantic Building Models

*Semester Projects:*

▷ Image Quality Mapping with Explicit Modeling of Linear and Gamma Corrections

▷ Multiple Image Blind Deblurring, [published](#) at IEEE ICIP 2020

### B.S. in Electrical Engineering and Computing

Belgrade, Serbia

University of Belgrade, School of Electrical Engineering, GPA: 10.00/10.00

2014 - 2018

## SELECTED PUBLICATIONS (FULL LIST CAN BE FOUND ON MY [GOOGLE SCHOLAR](#))

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- [1] **J. Trisovic**, A. Didier, S. Muntwiler, and M. N. Zeilinger, “Moving horizon estimation for simultaneous localization and mapping with robust estimation error bounds”, *2025 IEEE European Control Conference*,
- [2] R. Rickenbach\*, **J. Trisovic\***, A. Didier, J. Sieber, and M. N. Zeilinger, “Task-level insights from eigenvalues across sequence models”, *submitted to ICLR 2026*,
- [3] **J. Trisovic**, A. Carron, and M. N. Zeilinger, “Uncertainty-aware perception-based control for autonomous racing”, *submitted to IEEE Transactions on Control Systems Technology*, 2025.

## ONGOING PROJECTS

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- Analysis of large language models using insights from control theory
- Perception-aware control for autonomous racing
- Safe object manipulation using large language models and model predictive control

## SKILLS

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- **Programming languages and frameworks:**
  - ▷ Python, PyTorch                   ● ● ●
  - ▷ C<sup>++</sup>, MATLAB, LabVIEW       ● ● ○
  - ▷ JAX, TensorFlow, ROS           ● ○ ○
- **Other tools and software:**
  - ▷ Linux, Latex, GIT, TIA Portal, SQL, RobotStudio

## LANGUAGES

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- **English:** fluent, C2
  - Cambridge Proficiency Exam
- **German:** intermediate, B2
  - Goethe-Zertifikat
- **Russian:** intermediate, B1
- **Serbian:** mother tongue

## AWARDS

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- Award for the best unconference proposal at the Eastern European Machine Learning Summer School 2020
- Excellence Scholarship and Opportunity Programme Scholar 2018 - awarded to the best ETH master’s applicants
- Student valedictorian at the School of Electrical Engineering, University of Belgrade - awarded to the best student of the entire cohort
- IEEE Signal Processing Society Travel Grant to attend the 2018 IEEE ICASSP
- Outstanding Poster Award at Joint Mathematics Meetings 2018, organized by Mathematical Association of America and the American Mathematical Society in San Diego, USA
- Multiple medals at international competitions (e.g., European Girls’ Mathematical Olympiad 2012, 2013, 2014)

## MISCELLANEOUS

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### Teaching Experience

- Head teaching assistant at the Swiss Federal Institute of Technology (ETH) since autumn semester 2022
- Teaching assistant at Ashesi University in Ghana, spring semester 2022 and 2023
- Undergraduate teaching assistant at the School of Electrical Engineering, University of Belgrade 2015-2018

### Machine Learning Summer Schools

- Lisbon 2025, Eastern European 2020, Petnica 2018

### Internship at MikroElektronika D.O.O

Summer 2016

- Built an air quality control app, gaining experience in embedded programming (PIC and ARM architectures)