Frano Rajič

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Personal Website

I am a PhD student in the Computer Vision and Learning Group at ETH Zürich. Previously, I received my MSc in Data Science from EPFL and BSc in Computer Science from UniZG-FER. My current research focuses on addressing 3D computer vision problems using deep learning, particularly in dynamic scene reconstruction and tracking. A first-generation scholar.

EDUCATION

PhD in Computer Science, ETH, Zürich, Switzerland. *January 2024 – ongoing*
MSc in Data Science, EPFL, Lausanne, Switzerland. GPA: 5.85/6. Rank: 2/84. *September 2021 – September 2023*
Visiting Student, ETH, Zürich, Switzerland. Thesis grade: 6.0/6. *March 2023 – September 2023*
Visiting Student, KTH, Stockholm, Sweden. GPA: 5.0/5. *August 2020 – January 2021*
BSc in Computer Science, UniZG-FER, Zagreb, Croatia. GPA: 4.7/5. Rank: 16/407. *October 2017 – July 2020*

CORE EXPERIENCE

Computer Vision and Learning Group (VLG), ETH Zürich, Switzerland
PhD in Computer Science Student *January 2024 – ongoing*

- Advised by Prof. Siyu Tang and Prof. Marc Pollefeys.
- Research on foundation models for 3D and 4D scene reconstruction and multi-view 3D point tracking from videos.
- Developed MVTracker, the first data-driven multi-view 3D point tracker, accepted to ICCV 2025 as oral (top 0.5%). [1]
- TA for Digital Humans (*Spring 2024*, *Spring 2026*), Computer Science II (*Fall 2024*), Data Structures and Algorithms (*Spring 2025*), Computer Vision (*Fall 2025*).

Computer Vision Lab (CVL), ETH Zürich, Switzerland
Research Intern, "Zero-shot Video Tracking on Out-of-distribution Data" *March 2023 – December 2023*

- Advised by Dr. Martin Danelljan and Prof. Fisher Yu.
- Tracked the movement of points on an object surface across a series of video frames in a robust and long-term manner.
- Discovered that foundation models for image segmentation yield state-of-the-art performance in zero-shot video object segmentation across benchmarks when combined with long-term point tracking within our proposed SAM-PT method.
- Featured as a HuggingFace Daily Paper, received 1K+ GitHub stars, and accepted to WACV 2025. [2]

Visual Intelligence for Transportation Lab (VITA), EPFL Lausanne, Switzerland
Research Intern *September 2022 – March 2023*

- Advised by Prof. Alexandre Alahi.
- Conceived a synthetic dataset with causality labels using counterfactual simulations, thereby providing a framework to assess the resilience of multi-agent motion forecasting models against perturbations in non-causal neighboring agents.
- Innovated learning techniques that regularized models to improve causal understanding and forecasting accuracy.
- Work accepted to CVPR 2025. [3]

Data Science Lab (DLAB), EPFL Lausanne, Switzerland
Research Intern *March 2022 – August 2022*

- Advised by Prof. Robert West, and in collaboration with applied scientists from the Turing team at Microsoft Research.
- Implemented two variants of Monte Carlo Tree Search for text generation in transformer-based large language models, integrated four different Natural Language Processing tasks into the pipeline, and implemented ad-hoc score computation.
- Work accepted to EACL 2023 Findings. [4]

ADDITIONAL EXPERIENCE

Nviso SA Lausanne, Switzerland
Machine Learning Engineer Intern *July 2022 – September 2022*

- Developed a 2D and 3D synthetic data generator in Unity for human pose estimation and human activity recognition.

Amazon Dublin, Ireland
Software Development Engineer Intern *May 2021 – October 2021*

- Analyzed and diagnosed the adverse effects of server infrastructure changes on Apache Lucene performance.
- Leveraged system monitoring tools to identify I/O and memory caching bottlenecks within Apache Lucene.

- Proposed infrastructure modifications projected to reduce Apache Lucene server costs by 20%.

Youth Research Centre, UniZG-FER Zagreb, Croatia
Workshop Instructor & Financial Officer *December 2017 – April 2020*

- Facilitated the participation of over two hundred students from across Croatia in national and international competitions, including the International Young Physicists' Tournament and International Young Naturalists' Tournament.
- Conducted workshops for computer science students covering deep learning, Raspberry Pi, and 3D printing.

HashCode d.o.o. Zagreb, Croatia
Software Development Engineer Intern *July 2019 – October 2019*

- Optimized mathematical and computer science algorithms in Java, focusing on graphs and flows.
- Developed and deployed a backend Java application based on the Play framework.
- Employed web browser automation via Python libraries to streamline extraction processes done by hand.

HONORS & AWARDS

International Computer Vision Summer School – **Top 15%**. University of Cambridge, UK and UNICT, Italy, 2024
EDIC PhD Fellowship (offer received) – **Top 5%**. *EPFL, Switzerland*, 2023
Dean's Recognition of Excellence "Josip Lončar" – **Rank: 1/475**. *UniZG-FER, Croatia*, 2021
Student Award for Digital Innovation – **Rank: 2/60**. *Hanza Media, sponsored by Google, Croatia*, 2020
Erasmus+ KA103 SMS Scholarship – **Rank: 6/107**. *University of Zagreb, Croatia*, 2020
National STEM Scholarship – **Top 5%**. *Ministry of Science and Education, Croatia*, 2018/2019/2020
National Matriculation Exam – **Rank: 1/11644** in Mathematics. *Ministry of Science and Education, Croatia*, 2017
National Matriculation Exam – **Rank: 1/2299** in Informatics. *Ministry of Science and Education, Croatia*, 2017
Croatian Informatics Olympiad – **Rank: 6th** at national level. *Ministry of Science and Education, Croatia*, 2017

PROFESSIONAL EXPERTISE

Skills	Applied Data Analysis, Advanced Machine Learning, Optimization for Machine Learning, Deep Learning, Causal Inference, Software Design, Design Patterns, Advanced Algorithms, Databases.
Programming	Python (7 years), Java (3 years), C/C++ (2 years), C# (1 year).
Frameworks	PyTorch, Hydra, PyTorch Lightning, Pandas, TensorFlow, Detectron2, ASP.NET Core 3.
Tools	Linux, Git, Latex.
Languages	English (TOEFL 111), German (Goethe B2), Croatian (native).
Hobbies	Rowing, Singing.

INDUSTRY TRAINING

Soft Skills Academy – **Leadership skills.** *University of Zagreb, Croatia*, 2019
Erasmus+ Training Course – **Antibias approach.** *PARAGRAF International, France*, 2018
Erasmus+ Training Course – **Group development.** *Centre of Youth and Sport of Corsica, France*, 2018
Erasmus+ Youth Exchange – **Promoting self-awareness.** *Progetti Europei di Cooperazione, Italy*, 2018
Erasmus+ Youth Exchange – **Socially responsible and active citizens.** *Jugendtreff Käl/Téiteng, Luxembourg*, 2018

SELECTED PUBLICATIONS

[1] **Frano Rajič**, Haofei Xu, Marko Mihajlovic, Siyuan Li, Irem Demir, Emircan Gündoğdu, Lei Ke, Sergey Prokudin, Marc Pollefeys, and Siyu Tang. "Multi-View 3D Point Tracking". In: *Proceedings of the IEEE/CVF International Conference on Computer Vision (**ICCV**)*. 2025. [Project Page]. **Oral (top 0.5%)**.

[2] **Frano Rajič**, Lei Ke, Yu-Wing Tai, Chi-Keung Tang, Martin Danelljan, and Fisher Yu. "Segment Anything Meets Point Tracking". In: *Proceedings of the IEEE/CVF Winter Conference on Applications of Computer Vision (**WACV**)*. 2025. [Paper] [Code] [HF Daily]. **1K+ GitHub stars**.

[3] Ahmad Rahimi, Po-Chien Luan, Yuejiang Liu, **Frano Rajič**, and Alexandre Alahi. "Sim-to-Real Causal Transfer: A Metric Learning Approach to Causally-Aware Interaction Representations". In: *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (**CVPR**)*. 2025. [Paper] [Code].

[4] Martin Josifoski, Maxime Peyrard, **Frano Rajič**, Jiheng Wei, Debjit Paul, Valentin Hartmann, Barun Patra, Vishrav Chaudhary, Emre Kiciman, Boi Faltings, and Robert West. "Language Model Decoding as Likelihood–Utility Alignment". In: *Findings of the Association for Computational Linguistics (**EACL**)*. 2023. [Paper] [Code].

[5] **Frano Rajič**. "Robustness of Embodied Point Navigation Agents". In: *Proceedings of the European Conference on Computer Vision (**ECCV**) Workshops*. 2022. [Paper] [Project Page].