

Lazar Đoković

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EDUCATION

- Erasmus Mundus Joint Master in Artificial Intelligence (M.Sc.)** Sep. 2024 – Aug. 2026
University of Ljubljana · Radboud University · Pompeu Fabra University · GPA: 9.75/10.0, cum laude
Master's thesis: A Memory-Based Deep Learning Method for Long-Term Visual Point Tracking
Supervisors: Prof. Dr. Matej Kristan and Dr. Alan Lukežič · Grade: 10/10
- B.Sc. in Computer and Information Science** Oct. 2021 – Aug. 2024
University of Ljubljana, Faculty of Computer and Information Science · GPA: 9.5/10.0
Bachelor's thesis: Sarcasm Detection with Transfer Learning from Multiple Sources
Supervisor: Prof. Dr. Marko Robnik-Šikonja · Grade: 10/10

RESEARCH EXPERIENCE

- Research Intern, VILAB (Summer@EPFL)** Jul. 2026 – Present
EPFL | Supervisor: Prof. Dr. Amir Zamir
Lausanne, Switzerland
- Analyzing the structure of FlexTok's variable-length discrete latent space through **random-sequence decoding and token-swapping**, revealing that arbitrary sequences often produce implausible images while individual tokens can transfer localized visual content.
 - Evaluated all released FlexTok checkpoints on COCO across token budgets using FID and am **investigating hierarchical re-tokenization** to improve reconstruction quality with fewer tokens.
- Dense Memory-Based Visual Point Tracking** Oct. 2025 – Jul. 2026
ViCoS, University of Ljubljana | Supervisors: Prof. Dr. Matej Kristan and Dr. Alan Lukežič
Ljubljana, Slovenia
- Developed an attention-based global matching stage for robust long-range point correspondence and recovery after extended occlusions, replacing the localized refinement used in previous dense trackers.
 - Introduced a **coarse-to-fine appearance memory** with visibility- and confidence-gated updates, adapting to appearance changes while filtering unreliable and background-contaminated features.
 - Proposed **DeMeTer**, a dense memory-based point tracker that **establishes a new state of the art** on three of four *TAP-Vid/RoboTAP* benchmarks, delivering a 4.1% relative improvement in δ_{avg} over the strongest prior method while operating in real time; preparing a submission for **CVPR27**
- XFeat Revisited: Reproducibility and Robustness Evaluation** Oct. 2025 – Feb. 2026
Data Science Lab, University of Ljubljana | Supervisor: Prof. Dr. Erik Štrumbelj
Ljubljana, Slovenia
- Re-implemented XFeat and reproduced relative-pose, homography, and visual-localization evaluations on *MegaDepth-1500*, *ScanNet-1500*, *HPatches*, and *Aachen*.
 - Extended the study with **novel architectural ablations and zero-shot out-of-distribution evaluations**, showing that the keypoint branch primarily benefits semi-dense matching and that performance degrades under severe viewpoint and modality shifts.
 - Published the study in **TMLR** with a Reproducibility Certification.
- Sarcasm Detection in a Less-Resourced Language** Oct. 2023 – Aug. 2024
ML and NLP Lab, University of Ljubljana | Supervisor: Prof. Dr. Marko Robnik-Šikonja
Ljubljana, Slovenia
- Created a Slovene version of *iSarcasmEval* using neural machine translation and evaluated cross-lingual transfer across monolingual and multilingual Transformer models.
 - Fine-tuned models across multiple scales and pretraining strategies and developed an ensemble that achieved an F_1 score of 0.765, **approaching annotator agreement** in the source language; published and presented at **SCAI24**.

PUBLICATIONS

- [1] **L. Đoković** and A. Lin. *XFeat Revisited: Reproducibility and Evaluation of a Lightweight Image Matcher*. Transactions on Machine Learning Research (**TMLR**), 2026. Reproducibility Certification.
- [2] **L. Đoković** and M. Robnik-Šikonja. *Sarcasm Detection in a Less-Resourced Language*. Proceedings of the Slovenian Conference on Artificial Intelligence (**SCAI**), pp. 19–22, 2024.

INDUSTRY EXPERIENCE

Data Scientist Intern <i>Microsoft Supervisor: Dr. Maja Stikić</i>	Jun. 2025 – Sep. 2025 <i>Belgrade, Serbia</i>
• Worked on Code Copilot, an agentic system that converts large enterprise codebases into code graphs to support software understanding and modernization. • Developed an agent that traverses code graphs sequentially by following relationships, replacing fixed Cypher retrieval that returned excessive irrelevant context. • Evaluated the approach with subject-matter experts and LLM-as-a-judge pipelines, improving user satisfaction while using approximately 11% of the context required by the previous method; contributed to its deployment to thousands of engineers.	
AI Scientist Intern <i>Teads Supervisor: Prof. Dr. Jure Demšar</i>	Feb. 2025 – Jun. 2025 <i>Remote, Slovenia</i>
• Studied click-through-rate scaling laws for Teads’ production Deep & Cross prediction model in an online-learning setting. • Ran large-scale experiments on 13.5 million anonymized time-series ad-interaction samples to identify batch-size and learning-rate settings that improved training speed and convergence.	
Data Processing Intern <i>Graphics and Multimedia Lab, University of Ljubljana Supervisor: Prof. Dr. Matija Marolt</i>	June 2022 – Aug. 2022 <i>Ljubljana, Slovenia</i>
• Digitized 20th-century Slovene music magazines and Yugoslav parliamentary records into searchable, linguistically annotated archives, preserving historically valuable material for research.	

AWARDS & HONORS

Best Poster Award <i>Erasmus Mundus Joint Master in Artificial Intelligence</i>	Apr. 2026
• Awarded for presenting research on dense memory-based visual point tracking.	
1st Place, Programmed Art Competition <i>University College London and G-Research</i>	Jul. 2025
• Created a visualization of language-model bias using multidimensional random walks.	
Full Erasmus Mundus Scholarship <i>European Commission</i>	Sep. 2024
• Selected as one of 15 scholarship recipients for the Erasmus Mundus Joint Master in Artificial Intelligence.	
Dean’s Awards <i>University of Ljubljana</i>	2023 – 2024
• Received the Dean’s Award for Outstanding Academic Achievement, along with awards for exemplary academic performance in my second and third years of bachelor’s studies (top 2% of students).	

LICENSES & CERTIFICATIONS

Programming of GPUs - CUDA <i>Issued by EuroCC SLING. Credential ID 202311-23</i>	Jan. 2024
Fundamentals of Supercomputing <i>Issued by EuroCC SLING. Credential ID 202303-4</i>	April 2023

TECHNICAL SKILLS & LANGUAGES

Programming: Python, Java, C/C++, SQL, Bash
Machine Learning: PyTorch, PyTorch Lightning, JAX, Hugging Face Transformers and Accelerate, scikit-learn
Infrastructure: Git, Docker, Kubernetes, Azure, Slurm, Neo4j, L ^A T _E X
Languages: English (IELTS 8.5/9.0), German (Elementary), Slovene (Advanced), Serbian (Native)