Teodora Spasojevic

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Experience

Mercedes-Benz AG - Master's Thesis Student Stuttgart, Germany, May. 2025 – Nov. 2025

- Developed a thesis on enhancing temporal consistency of video generation (VG) in an end-to-end multimodal manner. I propose a novel framework for fine-tuning pretrained VG models (Stable Video Diffusion), while keeping the inference control-free. The framework enforces dynamic, semantic, and depth consistency, by comparing outputs of off-the-shelf object detection (DN-DETR), feature extraction (DINO), semantic segmentation (SAM), and depth estimation (DepthAnything) models between ground-truth and generated videos. For this work, I have designed distributed training and evaluation pipelines deployed on GCP with Flyte. This work was extended to a paper accepted to the IEEE IV.

Mercedes-Benz AG - Intern Stuttgart, Germany, Nov. 2024 – May. 2025

- Literature review of diffusion-based video generative and foundation/world models (WM) and conditioning mechanisms (ControlNet); research contributing to the master's thesis definition. Experiments with models: SVD, Vista WM, Cosmos WM, Ctrl-V (SVD with ControlNet), nuRec.
- Used infrastructure: Google's cloud computing service (GCP) with Flyte and Weights&Biases support. I have developed a tutorial on GCP and workflow setup for GCP, now used by the team.
- Participated and presented my work in team research sync meetings.

Friedrich-Alexander University - Research Assistant Erlangen, Germany, May. 2024 – Nov. 2024

- Implemented a new initialization method for Bilinear Expectation Propagation (EP) algorithm, part of a Cell-Free 6G Information Theory Project. New initialization led to an increase in accuracy of the EP algorithm. Experiments were conducted on a high-performance computing (HPC) cluster.

TTTech Auto - Software Engineer Intern Belgrade, Serbia, Mar. 2023 – Aug. 2023

- Completed my bachelor thesis on the topic of Real-time Traffic Light Detection in the CARLA Simulator. The work included usage of signal processing tools with, at the time, SOTA object detection model (YOLO) with real-time capabilities, and integrating it into CARLA simulator..

Publications

"LSA: Localized Semantic Alignment for Enhancing Temporal Consistency in Traffic Video Generation", IEEE Intelligent Vehicles (IV) 2026 Symposium, project page

Education

Friedrich-Alexander-University Erlangen, Germany
M.Sc. Mechanical Engineering Oct. 2023 – Dec. 2025

- Department: Electromobility-ACES with majors in AI, Autonomous Driving and Communication.
- Scientific Project: Uncertainty Estimation for Video Generative models.
- Minor Projects: Vision Transformer, LSTM, RNN implementation; Imitation Learning.
- Courses: CV, RL, Advanced DL (including advanced concepts as Explainability, Uncertainty) etc.
- GPA: 1.4

School of Electrical Engineering Belgrade, Serbia
B.Sc. Electrical Engineering and Computing Oct. 2019 – Jul. 2023

- Department: Signals and Systems.
- Activity: Undergraduate Teaching Assistant on courses Signals and Systems and Automatic Control Systems 2021-23; focused in AI, ML, Computer Science, Mathematics, Signal Processing
- GPA: 9.33/10.00 (equivalent to 1.5 in German grading system)

Additional Information

- **Technical Skills:** Python, C++, PyTorch, PyTorch Lightning, Accelerate, Transformers, Diffusers, CUDA, Docker, Flyte, Git, Linux, GCP, Cloud Computing, Distributed Training
- **Languages:** English: Full Professional proficiency | German, French: Basic Level | Serbian: Native Speaker
- **Scholarships:** BAYHOST Scholarship (2024-2026) and Scholarship for Exceptionally Gifted Students by Ministry of Education, Science and Technological Development of Republic of Serbia (2020-2023)
- **Soft skills**: developed communicational skills, teamwork, problem-solving, knowledge sharing skills
- **Other**: B2 driving license