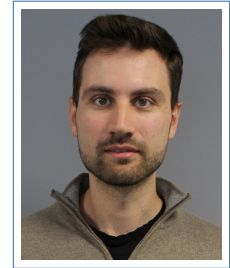


Nikola Popovic

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[LinkedIn](#)  [Google Scholar](#)  [GitHub](#) 

I am interested in building next-generation spatial intelligence systems that can understand and act in complex environments through multi-modal reasoning. My goal is to enable transformative, real-world advances in human-made environments through augmented assistance, robotics, and intelligent automation. Specifically, I am interested in developing practical solutions for multi-modal fusion — combining 3D maps, video feeds, digital twins, and operational documents — to enable continuous, online spatio-temporal reasoning.

Education

- Oct. 2019 – **PhD in Computer Vision**, *Computer Vision Lab (CVL), ETH Zurich, Switzerland*.
 - May 2024
 - Supervised by Prof. Luc Van Gool.
 - Worked on implicit 3D representations of indoor scenes using neural fields.
 - Worked on 3D gaze tracking for an AR system with near-eye IR cameras.
 - Worked on various aspects of 2D scene understanding such as multi-task learning and deep learning architecture design, as well as conditional image generation.
- Sep. 2017 – **MSc in Electrical Engineering and Computer Science**, *University of Belgrade, Serbia*.
 - June 2019
 - Average grade: 10.0/10.0 ↑.
 - Completed courses on diverse topics, such as machine learning, statistical models, and optimization.
 - Thesis: *Gaussian Process Domain Experts for Predicting Alzheimer's Disease-Related Cognitive Scores*.
- Sep. 2013 – **BSc in Electrical Engineering and Computer Science**, *University of Belgrade, Serbia*.
 - Sep. 2017
 - Average grade: 9.7/10.0 ↑.
 - Completed courses transitioning from core electrical engineering to signal processing and control theory.

Experience

- Jan. 2025 – **Research Scientist**, *INSAIT, Bulgaria*.
 - ongoing**
 - Pursuing research developments on next-generation spatial intelligence systems.
 - Supervising PhD students through research projects.
- Oct. 2023 – **Research Scientist Intern**, *Meta Reality Labs, Switzerland*.
 - April. 2024
 - Leveraging implicit neural representations of dynamic 3D scenes for extracting geometric features.
 - Experience in collaborative tech development with tools and practices of a big tech company.
- Oct. 2019 – **PhD Researcher**, *Computer Vision Lab (CVL), ETH Zurich, Switzerland*.
 - July 2024
 - Research consultant for two startups. During 2021-2023, on 3D gaze tracking systems for AR through an Innosuisse project. Also during 2019-2021, on eye disease detection systems.
 - Supervised 11 student projects and theses in 3D and 2D computer vision.
 - Teaching activities at the Image Analysis and Computer Vision course.
- Oct. 2017 – **Teaching Assistant**, *Department of Signals and Systems, University of Belgrade, Serbia*.
 - Sep. 2019
 - Research projects in machine learning.
 - Teaching activities in 7 undergraduate courses.
 - Committee member for 12 bachelor's thesis.
- Sep. 2018 – **Organizing Committee**, *PSIML organization, Serbia*.
 - ongoing**
 - Organized several editions of the annual international [Practical Seminar in Machine Learning](#).
 - Agenda planning, recruiting lecturers, student review & selection, advertising, etc.
 - In 2024, I spearheaded an initiative to establish high-quality paid student research internships in Serbian industry for publishing at top AI conferences. Resulting in a pilot project with a local 3D vision startup.

Invited Talks

Advancing Scene Representations and Gaze Tracking in AR.

Institut for Computer Science and Artificial Intelligence (INSAIT), Bulgaria. (2024).

Neural Rendering.

9th - 10th Practical Seminar In Machine Learning (PSIML), Serbia. (2023-2024).

Transformers in Computer Vision.

4th Nepal Winter School in AI by NAAMII, virtual. (2023);

9th PSIML: Practical Seminar In Machine Learning, Serbia. (2023).

Training Deep Neural Networks.

7th - 9th PSIML: Practical Seminar In Machine Learning , Serbia. (2021 - 2023).

Services

- 2021 – **Paper reviewer.**
ongoing I have reviewed scientific paper submissions for CVPR, ECCV, ICCV, and WACV.
2025 **Outstanding Reviewer CVPR25.**

Selected publications

- CVPR 2026 **Chorus: Multi-Teacher Pretraining for Holistic 3D Gaussian Scene Encoding.**
Yue Li, Qi Ma, Runyi Yang, Mengjiao Ma, , Bin Ren, **Nikola Popovic**, Nicu Sebe, Theo Gevers, Luc Van Gool, Danda Pani Paudel, Martin R. Oswald
- NeurIPS 2025 **SceneSplat++: A Large Dataset and Comprehensive Benchmark for Language Gaussian Splatting.**
Mengjiao Ma, Qi Ma, Yue Li, Jiahuan Cheng, Runyi Yang, Bin Ren, **Nikola Popovic**, Mingqiang Wei, Nicu Sebe, Luc Van Gool, Theo Gevers, Martin R. Oswald, Danda Pani Paudel
- ICCV 2025 **SceneSplat: Gaussian Splatting-based Scene Understanding with Vision-Language Pretraining.**
Oral Yue Li, Qi Ma, Runyi Yang, Huapeng Li, Mengjiao Ma, Bin Ren, **Nikola Popovic**, Nicu Sebe, Ender Konukoglu, Theo Gevers, Luc Van Gool, Martin R. Oswald, Danda Pani Paudel
- ICCV 2023 **Surface Normal Clustering for Implicit Representation of Manhattan Scenes.**
Nikola Popovic, Danda Pani Paudel, Luc Van Gool.
- ISMAR 2023 **Model-aware 3D Eye Gaze from Weak and Few-shot Supervisions.**
Nikola Popovic*, Dimitrios Christodoulou*, Danda Pani Paudel, Xi Wang, Luc Van Gool.
- WACV 2023 **Spatially Multi-conditional Image Generation.**
Nikola Popovic*, Ritika Chakraborty*, Danda Pani Paudel, Thomas Probst, Luc Van Gool.
IEEE/CVF Winter Conference on Applications of Computer Vision (**WACV**), 2023.
- ICIP2023 **Token-consistent Dropout for Calibrated Vision Transformers.**
Nikola Popovic, Danda Pani Paudel, Thomas Probst, Luc Van Gool.
- MIR 2023 **Rethinking Global Context in Crowd Counting.**
(journal) Guolei Sun, Yun Liu, Thomas Probst, Danda Pani Paudel, **Nikola Popovic**, Luc Van Gool.
- CVPR 2022 **Gradient Obfuscation Checklist Test Gives a False Sense of Security.**
Nikola Popovic, Danda Pani Paudel, Thomas Probst, Luc Van Gool.
IEEE/CVF Conference on Computer Vision and Pattern Recognition (**CVPR**), Workshop, 2022.
- arXiv **Improving the Behaviour of Vision Transformers with Token-consistent Stochastic Layers.**
Nikola Popovic, Danda Pani Paudel, Thomas Probst, Luc Van Gool.
- CVPR 2021 **CompositeTasking: Understanding Images by Spatial Composition of Tasks.**
Nikola Popovic, Danda Pani Paudel, Thomas Probst, Guolei Sun, Luc Van Gool.
IEEE/CVF Conference on Computer Vision and Pattern Recognition (**CVPR**), 2021.
- ICCV 2021 **Task Switching Network for Multi-task Learning.**
Guolei Sun, Thomas Probst, Danda Pani Paudel, **Nikola Popovic**, Menelaos Kanakis, Jagruti Patel, Dengxin Dai, Luc Van Gool.
IEEE/CVF International Conference on Computer Vision (**ICCV**), 2021.
- IcETRAN 2019 **Gaussian Process Domain Experts for Prediction of Alzheimer's Disease-Related Cognitive Scores.**
Best paper award **Nikola Popovic**, Ognjen Rudovic, Predrag Vasilic, Predrag Tadic.
6th International Conference on Electrical, Electronic and Computing Engineering (**IcETRAN**), 2019.

Open Source Projects

🔗 **Manhattan NeRF** <https://github.com/nikola3794/normal-clustering-nerf>
Codebase of **Surface Normal Clustering for Implicit Representation of Manhattan Scenes**.

🔗 **CompositeTasking** <https://github.com/nikola3794/composite-tasking>
Framework for performing **CompositeTasking**, which is the fusion of multiple, spatially distributed tasks, for various aspects of image understanding.

🔗 **Checklist Test** <https://github.com/nikola3794/checklist-test-obfuscation-analysis>
Framework for evaluating noise injection adversarial defenses in order to prove that the gradient obfuscation checklist test gives a false sense of security.

Personal and Technical Skills

Languages	English (professional), German (elementary), Serbian (native).
Programming	Python, MATLAB, and LaTeX. (strong knowledge) C++, C, Bash, and SQL. (basic knowledge)
Libraries	PyTorch (+Lightning), NumPy, SciPy, Pandas, OpenCV, Open3D, ROS, Matplotlib, Wandb, Git.