

Aleksandar Stanić

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Education

Feb 2018–	IDSIA, Switzerland, Ph.D. in Computer Science (Artificial Intelligence)
Feb 2024	Supervisor: Jürgen Schmidhuber Multimodal Learning Vision-Language Models Self-supervised Learning Contrastive Learning OOD Generalization Generative Models Computer Vision (Structured) Representation Learning Deep Learning (CNNs, RNNs, GNNs, Transformers, LLMs, VLMs) Deep Reinforcement Learning
Sep 2013–	ETH Zurich, Switzerland, M.Sc., Information Technology and EE (GPA: 5.5/6)
Dec 2015	Focus: Information Theory Machine Learning Statistics Computer Vision Signal Processing Semester Project Advisor: Luc Van Gool , Master Thesis Advisor: Helmut Bölcskei
Sept 2009–	University of Belgrade, Serbia, B.Sc., Information Technology and Electrical Engineering
June 2013	(GPA: 9.76/10) <i>Best Graduated Student Award</i>

Professional Experience

Apr 2024–	Research Scientist, Google DeepMind, Zurich, Switzerland.
July–Dec 2023	Research Intern, Google.
Jun–Nov 2022	Research Scientist Intern, DeepMind.
Feb–May 2022	Research Internship, Google Brain.
2018–2024	Graduate Teaching Assistant, USI, Lugano, Switzerland <i>Courses: Machine Learning, Deep Learning Lab. Designing and holding exercise sessions; designing and grading assignments and exams; mentoring group projects.</i>
2016–2018	Research Engineer, uniqFEED AG, Zurich, Switzerland <i>Research and development of computer vision algorithms (Python, C++).</i>
2014–2015	Research Intern, Computer Vision Lab, ETH Zurich, Switzerland <i>Developing ML algorithms for online data analysis (false alarm detection and treatment recommendation) in the 'AI in Intensive Care and Emergency Medicine' project.</i>
2010–2013	Undergraduate Teaching Assistant, University of Belgrade, Serbia <i>Design and assessment of laboratory exercises; Supervising group experiments.</i>

Publications

- [1] **Stanić, A.**, Caelles, S., Tschannen, M. Towards Truly Zero-shot Compositional Visual Reasoning with LLMs as Programmers. **TMLR 2024.**
- [2] **Stanić, A.**, Gopalakrishnan, A., Irie, K. & Schmidhuber, J. Contrastive Training of Complex-Valued Autoencoders for Object Discovery. **Neural Information Processing Systems (NeurIPS), 2023.**
- [3] **Stanić, A.**, Ashley, D., Serikov, O., Kirsch, L., Faccio, F., Schmidhuber, J., Hofmann, T. & Schlag, I. The Languini Kitchen: Enabling Language Modelling Research at Different Scales of Compute. Preprint: <https://arxiv.org/abs/2309.11197>. Under review..
- [4] **Stanić, A.**, Tang, Y., Ha, David & Schmidhuber, J. An Investigation into the Open World Survival Game Crafter. **IEEE Transactions on Games.** Preliminary version in workshops on Decision Awareness in RL and Responsible Decision Making in Dynamic Environments, **ICML 2022.**

- [5] **Stanić, A.**, van Steenkiste, S. & Schmidhuber, J. Hierarchical Relational Inference. *Proc. of the AAAI Conference on Artificial Intelligence AAAI 2021*,
- [6] Zhuge M., Liu H., Faccio F., Ashley D., Csordas R., Gopalakrishnan A., Hamdi A., Al Kader Ham-moud H. A., Herrmann V., Irie K. , Kirsch L., Li B., Li G., Liu S., Mai J., Piekos P., Ramesh A., Schlag I., Shi W., **Stanić A.**, Wang W., Wang Y., Xu M., Fan DP., Ghanem B., Schmidhuber J.. Mindstorms in Natural Language-Based Societies of Mind *Preprint: <https://arxiv.org/abs/2305.17066>*. Under review..
- [7] Miladinović D., **Stanić, A.**, Bauer, S., Schmidhuber, J. & Buhmann, J. (2021). Spatial Dependency Networks: Neural Layers for Improved Generative Image Modeling. , *ICLR 2021*.
- [8] **Stanić, A.**, van Steenkiste, S. & Schmidhuber, J. Hierarchical Relational Inference (preliminary v.). *Workshop on Object-Oriented Learning: Perception, Representation, and Reasoning, ICML 2020*.
- [9] **Stanić, A.** & Schmidhuber, J. (2019). R-SQAIR: Relational Sequential Attend, Infer, Repeat. *Workshops on Perception as Generative Reasoning, & Graph Representation Learning, NeurIPS 2019*.
- [10] Wiatowski, T., Tschannen M., **Stanić, A.**, Grohs P. & Bölskei H. Discrete Deep Feature Extraction: A Theory and New Architectures. *Proc. of International Conference on Machine Learning, New York, USA, pp. 2149-2158, ICML 2016*.
- [11] **Stanić, A.** (2015). Deep Generalized Scattering Networks for Classification. *M.Sc. Dissertation. ETH Zurich*.

Grants

- 2020 Swiss National Supercomputer (CSCS) grant of a total of 200'000 GPU compute hours for research on Learning Structured World Models for Visual Perception and Reasoning

Scholarships and Awards

- 2019 **DeepMind** Travel Grant for NeurIPS 2019
- 2015 **ETH Zurich** Scholarship for Foreign Students
- 2013 **Best graduated student**, Department of Telecommunications and Information Technology, School of Electrical Engineering, University of Belgrade
- 2013-2015 Dositeja **Scholarship for Master Studies** in Switzerland
- 2013 Ilija Stojanovic Award for the best graduated student at the Telecommunications Department at University of Belgrade
- 2010-2012 Multiple scholarships for gifted students, City of Belgrade and Ministry of Education, Science and Technological Development, Republic of Serbia

Service

Reviewing

- Neural Information Processing Systems (**NeurIPS**).
- International Conference on Machine Learning (**ICML**).
- International Conference on Learning Representations (**ICLR**).
- ICML 2020 Workshop on Object-Oriented Learning (OOL): Perception, Representation, and Reasoning
- ICML 2020 Workshop on Graph Representation Learning and Beyond (GRL+)
- NeurIPS 2020 Workshop on Object Representations for Learning and Reasoning

Volunteering

- European Conference on Computer Vision (ECCV) 2014

Computer Skills

- Advanced: Python | PyTorch | Bash | LaTeX
- Intermediate: JAX | TensorFlow | C++ | Matlab
- Frameworks used: Unix | Git | OpenCV | Pandas | Scikit-learn | SciPy | NumPy | MongoDB | Hadoop MapReduce | IBM Streams | Inkscape | GIMP

Languages

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| • Serbian: Native | • Italian: Beginner |
| • English: Fluent | • Spanish: Beginner |
| • German: Intermediate | |