Djordje Miladinovic

Curriculum Vitæ

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Summary

- **My profile**: Senior AI/ML research engineer | PhD in Computer Science (AI/ML-focused) | Swiss resident | Serbian citizen. 9+ years in machine learning research | 13+ years in software engineering | 4+ years in project leading.
- **My work**: Leading large-scale machine learning projects from concept to working system. This includes designing and training deep neural networks to process typically high-dimensional and multi-modal data.

Experience

Senior AI/ML Research Engineer, *GSK-AI Department* ***Oct'21-Present*** .

- Applying machine learning to massive amounts of omics data (perturbational & observational). Aiming to build a computational platform for fast, accurate, and interpretable identification of disease-relevant genetic targets.

Machine Learning Researcher, *ETH Zürich* ***Feb'17-Jun'21*** .

- Sleep-learning web platform: Led a team of researchers to develop a web-based large-scale machine learning platform for sleep pattern recognition from EEG/EMG signals – *over 30K jobs processed to this date*.
- SDN neural networks: Co-developed a new type of neural network for realistic image synthesis. I then used it to *develop a state-of-the-art variational autoencoder* for image modeling.
- Zurich Exhalomics: In an interdisciplinary collaboration, co-developed a machine learning algorithm for interpretable identification of causal relations between metabolites and sleep stages (relating metabolism to sleep).

Machine Learning Researcher (Visitor), *Max Planck Institute for Intelligent Systems* ***Sep'18-Dec'18*** .

- Causal disentanglement framework: Co-developed a neural architecture for evaluating disentangled representations.

Machine Learning Researcher & Engineer (Intern), *Logitech Europe S.A.* ***Sep'16-Feb'17*** .

- Developed a machine learning platform to target potential premium users to reduce churn rate.

Machine Learning Researcher (Visitor), *Disney Research Studios, Zurich* ***Jan'16-Sep'16*** .

- Developed a software platform for detecting mechanical failures in Disney's humanoid robots based on IMU sensor readings. The platform uses novel machine learning algorithm to asses robot degradation in a human-like way.

Education

PhD in Computer Science – Machine Learning, *ETH Zürich* ***Sep'17-Jun'21*** .

- *Thesis:* "On training Deep Generative Models with Latent Variables" – Prof. Joachim M. Buhmann.
- *Research areas:* Generative image and text modeling | variational autoencoders | representation learning | deep learning | computer g | natural language processing | machine learning for biology.

MS in Computer Science – Machine Learning, *ETH Zürich* ***Sep'13-Jun'16*** .

- *Thesis:* "Perceptual Analysis Framework for Discovering Anomalies in Humanoid Motions" – Prof. Otmar Hilliges.
- *Focus:* Machine learning | software engineering | operating systems | distributed computing.

BS in Computer Science – Software Engineering, *ETF Belgrade* ***Sep'09-Sep'13*** .

- *Thesis:* "Java-based Interactive Software Simulator of a CISC Processor" – Prof. Zaharije Radivojević.
- *Focus:* Software engineering and design | algorithms | data structures | operating systems | hardware design.

Programming Languages

Advanced	Python | PyTorch | Bash | LaTeX
Intermediate	C/C++ | Java | Matlab | SQL | HTML | CSS
Basic	Tensorflow | Torch | Node.js | C# | Jekyll | Javascript | VHDL

Selected Publications

[1] **Đorđe Miladinović**, Kumar Shridhar, Kushal Jain, Max B Paulus, Joachim M Buhmann, Carl Allen
Learning to Drop Out: An Adversarial Approach to Training Sequence VAEs
Advances in Neural Information Processing Systems, **NeurIPS 2022**

[2] **Đorđe Miladinović**, Aleksandar Stanić, Stefan Bauer, Jürgen Schmidhuber & Joachim M. Buhmann
Spatial Dependency Networks: Neural Layers for Improved Generative Image Modeling
International Conference on Learning Representations, **ICLR 2021**

[3] Raphael Suter, **Đorđe Miladinović**, Stefan Bauer & Bernhard Schölkopf
Robustly Disentangled Causal Mechanisms: Validating Deep Representations for Interventional Robustness
International Conference on Machine Learning, **ICML 2019**

[4] **Đorđe Miladinović** et al.
SPINDLE: End-to-end Learning from EEG/EMG to Extrapolate Animal Sleep Scoring Across Experimental Settings, Labs and Species, **PloS Computational Biology 2019**

See the complete list at Google Scholar

Academic Activities

Dec'19	Co-organized the Disentanglement Challenge at NeurIPS 2019.
2018-Present	Associated research fellow of Max Planck Institute for Intelligent Systems.
2017-2021	Reviewed papers for NeurIPS, ICML and ICLR.
2017-2020	Taught Advanced Machine Learning and Statistical Learning Theory courses at ETH Zürich.
2017-2020	Supervised more than 10 MS students.

Languages

Serbian (Native), English (Fluent), German (Intermediate), Spanish (Beginner)

Hobbies

Waterpolo | Swimming | Skiing and snowboarding | Tennis | Cinematography | Reading