Đorđe Miladinović

Curriculum Vitæ

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Software Engineer | Machine Learning Researcher | B-permit Swiss Resident

Education

Sep'17-Jun'21	**ETH Zürich – PhD in Machine Learning & Computer Science**.
	Thesis: "On Training Deep Generative Models with Latent Variables", supervised by Prof. Dr. Joachim M. Buhmann. Research areas: Generative modeling of text and images, Representation learning, Deep learning for biology, Causality.
Sep'13-Jun'16	**ETH Zürich – MS in Computer Science**.
	Specialized in software engineering, distributed computing and machine learning.
Sep'09-Sep'13	**University of Belgrade – BS in Electrical Engineering & Computer Science**.
	Specialized in software/hardware engineering and design.

Work Experience

Feb'17-Present ETH Zürich, Institute for Machine Learning – Research Scientist.
- [Python/PyTorch] I led a team of researchers to develop a web platform that uses convolutional neural networks to recognize sleep patterns from brain signals (`sleeplearning.ethz.ch`). It is used daily by researchers worldwide.
- [Python/PyTorch] I invented a type of a neural network for realistic image synthesis (`github.com/djordjemila/sdn`).
- I was actively involved in numerous interdisciplinary collaborations including the following projects:
  - *Zurich Exhalomics* (`hochschulmedizin.uzh.ch/zurich-exhalomics`) – I led a team of students to develop a tool that automatically calibrates mass-spectrum of human breath, and also a machine learning algorithm to detect causal relations between different metabolites in human body and sleep stages (relating metabolism to sleep).
  - *Sleep Loop* (`sleeploop.ch`) – I developed an algorithm to recognize human sleep stages from wireless device recordings.
  - *VirtaMed collaboration* (`virtamed.com`) – I developed a machine learning tool that can automatically assess the performance of surgeons on a virtual surgery simulator.

Sep'18-Dec'18 Max Planck Institute for Intelligent Systems – Research Scientist.
- I worked on causality. I applied causal reasoning to generative models based on deep neural networks.

Sep'16-Feb'17 Logitech Europe S.A. Data Science & Advanced Analytics – Software Engineer.
- [Python/SQL] I used machine learning to analyze user logs to improve understanding of product utility.
- [Java] I used natural language processing algorithms to analyze opinions from Amazon reviews, for product enhancement.

Jan'16-Sep'16 Disney Research Zürich, Vision and Sensing Research Group – Research Scientist.
- [Python/C++/Matlab/Blender/HTML/CSS] I designed an algorithm to identify mechanical wears in Disney robots (animatronics). Machine learning algorithm was employed to provide human-like robot-degradation assessment.

Skills

General	Computer Vision, Natural Language Processing, Deep Learning, Algorithms & Data Structures, Operating Systems
Proficient in	Python, PyTorch, C, C++, Java, Matlab, Latex, Bash, HTML, CSS, Javascript
Experienced in	Hadoop MapReduce, C#, Javascript, NodeJS, Ruby on Rails, Torch, SQL, Pascal
Frameworks	Linux, Microsoft Windows, Microsoft Office, Git, Docker, OpenCV, Pandas, Scikit-learn, Django, Kubernetes

Languages

Serbo-Croatian (Native), English (Fluent), German (B1), Spanish (Beginner)

Academic Activities

Dec'19	NeurIPS 2019 – I co-organized the "Disentanglement Challenge" (`bit.ly/36bTD4W`)
2017-2019	Reviewer at NeurIPS, ICML, ICLR

Selected Publications (full list is available at djordjemila.github.io/#publications)

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

[2] 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

[3] **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