IVAN OVINNIKOV, PHD

ML / AI Specialist

@ ivan.ovinnikov@gmail.com

ovinnikov.com Zürich. CH

EXPERIENCE

ML Engineer (RL) **Anybotics AG**

📋 Oct 2024 – Ongoing

Zürich, CH

- Development of reinforcement-learning-based motion controllers for quadruped locomotion.
- Full-stack development and maintenance of the locomotion pipeline for industrial inspection deployment.

Doctoral Candidate ETH Zürich

📋 Feb 2019 – June 2024

Zürich, CH

- Designed a novel algorithmic pipeline for surgical assistance and evaluation based on inverse reinforcement learning techniques and implemented it in a surgical simulation product.
- Authored multiple manuscripts for peer-reviewed venues and presented at international conferences.
- Assisted in developing course materials for graduate-level courses in Advanced Machine Learning, Statistical Learning Theory and Algorithmic Game Theory.
- Conducted tutorials, graded assignments, and provided mentorship to students.

Research Assistant

Disney Research

📋 Nov 2016 - Dec 2018

- Zürich, CH
- Worked on extending sequence-to-sequence models for natural language processing using structured variational inference approaches.
- Authored a manuscript on applying hyperbolic geometry to Wasserstein autoencoder models for hierarchical structure discovery.

PUBLICATIONS

Books

• I. Ovinnikov, Reinforcement learning from demonstrations: methods and applications in digital twin simulations. 2024.

Journal Articles and Conference Proceedings

- I. Ovinnikov, A. Terenin, and J. M. Buhmann, "Imitation learning using generalized sliced wasserstein distances," TMLR, In review,
- I. Ovinnikov, A. Beuret, F. Cavaliere, and J. M. Buhmann, "Fundamentals of arthroscopic surgery training and beyond: A reinforcement learning exploration and benchmark," International Journal of Computer Assisted Radiology and Surgery, 2024.
- I. Ovinnikov, E. Bykovets, and J. M. Buhmann, "Learning causally invariant reward functions from diverse demonstrations," arXiv preprint arXiv:2409.08012, 2024.
- I. Ovinnikov, "Poincare wasserstein autoencoder," arXiv preprint arXiv:1901.01427, 2019.



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EDUCATION

Dr. Sc. in Computer Science **ETH Zürich**

🛗 Feb 2019 - June 2024

M. Sc. in Electrical Engineering and Information Technology **ETH Zürich**

📋 Sept 2009 – June 2015

SKILLS



Proficiency in model-free reinforcement and imitation learning methods, unsupervised learning and optimization, extensive knowledge in NLP including Large Language Models (LLM), broad knowledge of modern machine learning algorithms including VAE, GANs and diffusion models

Languages

Python, C, C++, C#, Java, MATLAB



Pytorch, Tensorflow, Jax, Numpy, Unity, ROS, IsaacSim, MuJoCo

STRENGTHS

Analytical skills

Broad knowledge of ML state-of-the-art

Communication

LANGUAGES

English	
English	
Russian	
German	
French	
Italian	
Chinese	

REFEREES

Prof. em. Dr. Joachim Buhmann

- @ Institute of Machine Learning, ETH Zürich
- ☑ jbuhmann@inf.ethz.ch