

Bartłomiej Cupiał

PhD Student, Machine Learning Engineer and Researcher, interested in Reinforcement Learning.

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WORK EXPERIENCE

NCBR IDEAS

Research INTERN

- Currently exploring options on how to use external knowledge (e.g. text) to spearhead exploration in the RL setting.
- During first year of my internship, I was working on my research on how to make RL more practical by bridging the gap between offline and online RL.

2023.01 - present

Hemolens

Machine Learning Engineer

- I was responsible for developing and designing learning based solutions for a non-invasive cardiac diagnostics system. During my time in Hemolens I created machine learning-based solutions for the segmentation of coronary arteries and myocardium and solved computer vision tasks related to 3D medical data in voxels and meshes. I also had possibility to research the application of RL algorithms to the medical domain.

- Author of two patents
- Python, PyTorch, ONNX, Docker, AzureML

2019.11 - 2022.10

Asseco

C++ developer in starter program

2019.07 - 2019.10

EDUCATION

University of Warsaw

PhD in Computer Science

2023.10 - present

Jagiellonian University

MSc in Computer Science, Machine Learning

2021.10 - 2023.07

Wrocław University of Science and Technology

BSc in Computer Science

2016.10 - 2020.02

LANGUAGES

Polish

Native

English

C1

RESEARCH PROJECTS

Fine-tuning Reinforcement Learning Models is Secretly a Forgetting Mitigation Problem

- Addressing challenges of fine-tuning pre-trained RL agents, which tends to be unstable. Experiments suggest that knowledge retention help stabilize and scale the model both in simple robotic environment [Meta World](#) as well as in very challenging domain of [NetHack](#) where I was able to beat previous SOTA by over 2x.
- Spotlight at [ICML 2024](#)
- <https://arxiv.org/abs/2402.02868>

GAN-based Plugin Model for Video Generation with Applications in Colonoscopy

- Video generation in high resolution is a very expensive task. By pre-training GAN on images and using a plugin model which constructed trajectories in the noise space we were able to generate realistic videos in 1024x1024 resolution.
- <https://arxiv.org/pdf/2311.03884>

Generate chemical compounds which are compatible with the given pharmacophore

- Pharmacophores are used to define the essential features of molecules and are used in drug design. By conditioning generation of the molecules with pharmacophores we were able to make process of molecule generation more efficient as more of them were compatible with specific biological target.

My own implementation mix match algorithm

ADDITIONAL EXPERIENCE

Participant in [RL Summer School](#)

Participant in [MLSSN 2022](#)

Robotics and Artificial Intelligence Students Association of Jagiellonian University (2021 - 2023)

Solvro Students' Association (2018 - 2020)

Stanford reinforcement learning course

Conducting workshops for new people interested in machine learning in Solvro Students' Association

MLinPL students speaker (2019 Conference)
Talk about MixMatch

Fastai course by n-weaves

Participation in few kaggle contests

Hopelt Hackaton

I hereby give consent for my personal data included in my application to be processed for the purposes of the recruitment process under the Personal Data Protection Act as of 29 August 1997, consolidated text: Journal of Laws 2016, item 922 as amended.