Ariel Kwiatkowski, PhD

Experienced researcher and engineer specializing in Reinforcement Learning and LLMs

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EXPERIENCE

Research Engineer (technical lead - reasoning team) Paris, France
Meta AI (FAIR) 09/2024 - Present

- Serve as the technical lead for the reasoning team, owning the core codebase and the engineering roadmap.
- Implemented one of the earliest public versions of GRPO (RL on LLMs), which was merged into the library torchtune. This implementation became a backbone for a large scale effort to build a highly-optimized async RL engine that involved approximately 20 engineers from other teams.
- Developed and evaluated novel RL algorithms that use a controllable amount of test-time compute.
- Orchestrated computational workflows across hundreds of GPUs for high-performance LLM training.
- Mentored a group of interns, managing their contributions to the core codebase.

AI Researcher (RL) Paris, France
AI Redefined (acquired by Bentley Systems) 10/2023 - 08/2024

- Designed and developed Cogment Lab, an open-source library for human-in-the-loop RL.
- Created a human-in-the-loop RL system for operating energy grids
- Developed a prototype interface that uses an LLM to convert natural language instructions into RL actions

Lead Developer Remote
Farama Foundation 2022 - 2024

- Open source developer, maintainer of Gymnasium (previously OpenAI Gym), contributor to other key RL software
- Made high-level design decisions for Gymnasium, guiding the library's direction.
- Implemented and reviewed crucial parts of new and legacy code.
- Delegated tasks to volunteers and coordinated their work.

Early Stage Researcher Paris, France
École Polytechnique 10/2020 - 10/2023
Doctoral candidate funded by the CLIPE ITN grant

- Created an RL crowd simulation setup powered, including the underlying simulation and the learning code.
- Produced research papers published in peer-reviewed conferences and journals.
- Advised the development of a student's Bachelor's thesis.

EDUCATION

École Polytechnique 2020 – 2023
PhD, Computer Science
Thesis: Simulating crowds with reinforcement learning
Supervisors: Marie-Paule Cani, Julien Pettré, Vicky Kalogeiton
Included exchanges at Ubisoft La Forge, TCD, KTH

KTH Royal Institute of Technology, Aalto University 2018 – 2020
M.Sc. Autonomous Systems, AI & Robotics
Double degree via EIT Digital
Thesis: Improving Ad-Hoc Cooperation in Multiagent Reinforcement Learning via Skill Modeling
Supervisors: Alexander Ilin, Antti Keurulainen

University of Warsaw 2015 – 2018
B.Sc. Physics, Individual Track
Thesis: High frequency airborne temperature measurements analyzed with AI techniques
Supervisor: Szymon Malinowski

SKILLS

- **Human languages:** English (fluent), Polish (native), French (intermediate)
- **Programming languages:** Python, Rust, C#, SQL, many others casually
- **Libraries:** PyTorch, NumPy, Pandas, Jax, Transformers, Unity, Flask, Pytest, Pytype, torchtune, torchtitan
- **Domains:** Reinforcement Learning, Data Analysis, Machine Learning, Neural Networks, Scientific Writing, Open-Source Development, Collaboration, Natural Language Processing

SELECTED PUBLICATIONS

PILAF: Optimal Human Preference Sampling for Reward Modeling 2025
Y. Feng, A. Kwiatkowski, K. Zheng, J. Kempe, Y. Duan
ICML 2025

Gymnasium: A standard interface for reinforcement learning environments 2024
A. Kwiatkowski, M. Towers, JK. Terry et al.
Under Review at NeurIPS 2025

Reward Function Design for Crowd Simulation via Reinforcement Learning 2023
A. Kwiatkowski, V. Kalogeiton, J. Pettré, M-P. Cani
MIG 2023

Understanding reinforcement learned crowds 2022
A. Kwiatkowski, V. Kalogeiton, J. Pettré, M-P. Cani
Computers & Graphics (MIG 2022)

A Survey on Reinforcement Learning Methods in Character Animation 2022
A. Kwiatkowski, E. Alvarado, V. Kalogeiton, CK Liu, J. Pettré, M. van de Panne, M-P. Cani
Computer Graphics Forum (Eurographics 2022)

UGAE: A Novel Approach to Non-exponential Discounting 2022
A. Kwiatkowski, V. Kalogeiton, J. Pettré, M-P. Cani
arXiv