Ulyana Piterbarg

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Research Interests

Main Threads

1. Training recipes with better scaling properties for settings at the frontier of foundation model capabilities, such as long-horizon decision-making, multi-agent collaboration, and human-like software development
2. Algorithms for improving foundation models at scale with self-generated data

Broader Interests: open-ended interaction, generally intelligent agents, self-organization, AI for science

Experience

Meta AI	2025–	**Research Intern**, Llama Team
New York University	2021–	**Ph.D. Student**, Courant Institute of Mathematical Sciences
Microsoft Research	2024	**Research Intern**, AI Frontiers / GenAI
Google Research	2021	**Research Intern**, Accelerated Sciences
Massachusetts Institute of Tech.	2017–2021	**B.Sc.**, Mathematics with Computer Science
Climate Modeling Alliance	2020–2021	**Researcher**, Ocean Processes
EPFL Summer Research Program	2018	**Research Intern**
MIT Lincoln Laboratory	2017–2018	**Technical Assistant**, Space Systems and Technology
American Museum of Natural History	2017	**Exhibition Design Intern**
Yale University	2016	**Research Intern**, The Clark Lab

Group Affiliations

CILVR @ NYU	*Rob Fergus*, *Lerrel Pinto*	2021–
Llama Agents / Agentic Post-Training, Meta	*Gregoire Mialon*, *Thomas Scialom*	2025–
Microsoft Research New York	*Jordan Ash*, *Dipendra Misra*	2024
ML for Physics, Google Research	*Dmitrii Kochkov*, *Stephan Hoyer*, *Michael P. Brenner*	2021
CliMA, MIT + Caltech + NASA JPL	*Andre Souza*, *Raffaele Ferrari*	2020–2021
MIT CoCoSci	*Kelsey R. Allen*, *Kevin A. Smith*, *Josh Tenenbaum*	2018–2020

Publications

[7] **Piterbarg, U.**, Gandhi, K., Pinto, L., Goodman, N.D., & Fergus, R. (2025). D3: A Large Dataset for Training Code Language Models to Act Diff-by-Diff. *2nd Conference On Language Modeling (COLM)*.

[6] **Piterbarg, U.**, Pinto, L., & Fergus, R. (2024). Training Language Models on Synthetic Edit Sequences Improves Code Synthesis. *Thirteenth International Conference on Learning Representations (ICLR) & New England NLP Symposium (NENLP 2025)*. **[Oral & Outstanding Paper Award, NENLP 2025]**.

[5] Paglieri, D., Cupiał, B., Coward, S., **Piterbarg, U.**, Wolczyk, M., Khan, A., Pignatelli, E., Kuciński, Ł., Pinto, L., Fergus, R., Foerster, J.N., Parker-Holder, J., & Röcktaschel, T. (2024). BALROG: Benchmarking Agentic LLM and VLM Reasoning on Games. *Thirteenth International Conference on Learning Representations (ICLR)*.

[4] **Piterbarg, U.**, Pinto, L., & Fergus, R. (2024). `diff` History for Neural Language Agents. *41st International Conference on Machine Learning (ICML)*.

[3] **Piterbarg, U.**, Pinto, L., & Fergus, R. (2023). NetHack is Hard to Hack. *37th Conference on Neural Information Processing Systems (NeurIPS)*.

[2] Ramadhan, A., Marshall, J., Souza, A., Lee, XK., **Piterbarg, U.**, Hillier, A., LeClaire Wagner, G., & Rackauckas, C. (2023). Capturing Missing Physics in Climate Model Parameterizations using Neural Differential Equations. *arXiv preprint arXiv:2010.12559*.

[1] Allen, K. R., Smith, K., **Piterbarg, U.**, Chen, R., & Tenenbaum, JB. (2020). Abstract Strategy Learning Underlies Flexible Transfer in Physical Problem Solving. In *CogSci*.

INVITED TALKS

"Priming Language Models for Hard Agentic Tasks" 2025
→ Workshop on Self-Improving Foundation Models Without Human Supervision @ ICLR 2025
→ Cohere, Post-Training Team

"The Fall and Rise of Deep RL: Learning Algorithms for LLM Reasoning & Agents" 2025
→ Guest Lecture, *Deep Decision-Making and Reinforcement Learning (CSCI-GA.3033-090)* @ NYU

"NetHack is Hard to Hack" 2024
→ CILVR Machine Learning Seminar @ NYU

"Structured Losses for Neural Simulators of Turbulent Flows" 2021
→ Google Research, Applied Science Team

"Flexible Transfer in Physical Problem Solving" 2021
→ Google Research, Brain Team

HONORS AND AWARDS

National Science Foundation Graduate Research Fellowship 2022–2025
Google DeepMind Ph.D. Scholarship 2021–2022
NYU Henry M. MacCracken Doctoral Fellowship 2021–2026
MIT Quest for Intelligence Undergraduate Research and Innovation Scholarship 2020–2021
National Merit Scholarship 2017
Moody's Math Modeling Challenge (*Finalist*) 2016
New Jersey Research Science Fair (*1st Place*, Chemistry & Materials Science) 2015

TEACHING

Lecturer & Teaching Assistant, *Introduction to Robot Intelligence (CSCI-UA 480-072)* 2023
New York University
Department of Computer Science

Teaching Assistant, *Seminar in Analysis (18.104)* 2021
Massachusetts Institute of Technology
Department of Mathematics

Teaching Assistant, *Computational Cognitive Science (6.804/9.66/9.660)* 2019
Massachusetts Institute of Technology
Department of Computer Science, Department of Brain and Cognitive Sciences

PROFESSIONAL SERVICE

Reviewer, *Conference on Neural Information Processing Systems (NeurIPS)* 2025–
Reviewer, *Conference on Language Modeling (COLM)* 2025–
Reviewer, *Transactions on Machine Learning Research (TMLR)* 2024–
Reviewer, *International Conference on Learning Representations (ICLR)* 2024–
Representative, *MIT Council for Math Majors* 2020–2021
Mentor, *MIT Undergraduate Society of Women in Math* 2019–2021
Mentor, *MIT Society of Women Engineers* 2019-2021
Volunteer, *Rolnick Observatory* 2015-2017
Volunteer & Member, *Westport Astronomical Society* 2015–2017
Contributor, *International Occulation Timing Association* 2015–2017

ADVISING

Carla Garcia Medina (now Research Engineer at *Google*) 2022–2023

LANGUAGES

Programming: Python, GoLang, Java, Julia, MATLAB, Javascript/CSS/HTML
Spoken & Written: English (native), Ukrainian (native), French (DELF B2)

REFERENCES

Available upon Request.