

Piotr MIŁOŚ

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WORK EXPERIENCE

- ASSOCIATE PROFESSOR OCT 2018 - PRESENT
Polish Academy of Sciences, Warsaw, Poland
- Conducting research in machine learning.
 - Leading an ML research group, coordinating multiple research projects, supervising Ph.D. students, acquiring funding.
- GROUP LEADER SEP 2022 - PRESENT
Ideas-NCBR, Warsaw, Poland
- Conducting research in machine learning.
 - Leading an ML research group, coordinating multiple research projects, supervising Ph.D. students, acquiring funding.
- VISITING PROFESSOR OCT 2021 - APR 2022
University of Oxford, Oxford, United Kingdom
- SENIOR DATA SCIENTIST JUN 2016 - JUN 2020
deepsense.ai, Warsaw, Poland
- Conducting research in machine learning.
 - Coordinating R&D activities, including collaboration with Volkswagen in autonomous driving.
 - Providing external communication in the R&D area.
- ASSISTANT PROFESSOR OCT 2009 - SEP 2018
Faculty of Mathematics, Informatics and Mechanics, University of Warsaw, Poland
- Conducting research in probability theory and machine learning.
 - Supervising Ph.D., master and bachelor students, acquiring funding.
- POST-DOC MAR 2011 - FEB 2013
University of Geneva, Switzerland and University of Bath, United Kingdom
- Conducting research in probability theory.

SHORT RESEARCH STATEMENT

I am interested in sequential modeling and decision-making, focusing on methods that deliver robust capabilities in complex scenarios. These methods have the potential to enable broadly intelligent agents and can be applied to diverse domains. I view many problems under this umbrella, including tasks that require extreme reasoning, such as solving mathematical problem, and classical continuous control in robotics. My efforts also involve building foundational knowledge, including sequential modeling (e.g., long-context transformers), DL and RL techniques.

EDUCATION

- PH.D. IN MATHEMATICS, OCT 2008
Institute of Mathematics, Polish Academy of Sciences, Warsaw, Poland
- MA IN COMPUTER SCIENCE, University of Warsaw, Poland JUN 2005
- MA IN MATHEMATICS, University of Warsaw, Poland JUN 2004

SELECTED PUBLICATIONS

- Repurposing Language Models into Embedding Models: Finding the Compute-Optimal Recipe; A. Ziarko, A. Jiang, B. Piotrowski, W. Li, M. Jamnik, P. Miłoś; *NeurIPS 2024*
- Bigger, Regularized, Optimistic: scaling for compute and sample-efficient continuous control; M. Nauman, M. Ostaszewski, K. Jankowski, P. Miłoś, M. Cygan; *NeurIPS 2024 (spotlight)*
- Fine-tuning Reinforcement Learning Models is Secretly a Forgetting Mitigation Problem; M. Wolczyk, B. Cupial, M. Ostaszewski, M. Bortkiewicz, M. Zajac, R. Pascanu, L. Kucinski, P. Miłoś; *ICML 2024 (spotlight)*
- Magnushammer: A Transformer-based Approach to Premise Selection; M. Mikula, S. Antoniak, S. Tworkowski, A. Jiang, J. Peng Zhou, Ch. Szegedy, L. Kuciński, P. Miłoś, Y. Wu; *ICLR 2024*
- Focused Transformer: Contrastive Training for Context Scaling; S. Tworkowski, K. Staniszewski, M. Pacek, Y. Wu, H. Michalewski, P. Miłoś; *NeurIPS 2023*
- Fast and Precise: Adjusting Planning Horizon with Adaptive Subgoal Search; M. Zawalski, M. Tyrolski, K. Czechowski, D. Stachura, P. Piekos, T. Odrzygózdź, Y. Wu, L. Kucinski, P. Miłoś; *ICLR 2023 (notable-top-5%)*
- Continual World: A Robotic Benchmark For Continual Reinforcement Learning; M. Wolczyk, M. Zajac, R. Pascanu, L. Kuciński, P. Miłoś; *NeurIPS 2021*
- Subgoal Search For Complex Reasoning Tasks; K. Czechowski, T. Odrzygózdź, M. Zbysiński, M. Zawalski, K. Olejnik, Y. Wu, L. Kuciński, P. Miłoś; *NeurIPS 2021*
- Model Based Reinforcement Learning for Atari (with L. Kaiser, M. Babaeizadeh, B. Osinski, R. Campbell, K. Czechowski, D. Erhan, C. Finn, P. Kozakowski, S. Levine, R. Sepassi, G. Tucker, H. Michalewski); *ICLR 2020 (spotlight)*
- Simulation-based reinforcement learning for real-world autonomous driving (with B. Osinski, A. Jakubowski, P. Ziecina, Ch. Galias, S. Homoceanu, H. Michalewski); *ICRA 2020*

SELECTED TECHNICAL SKILLS AND EXPERIENCE

MACHINE LEARNING AND DEEP LEARNING RESEARCH

- In-depth knowledge of ML and DL frameworks and libraries.
- Fluency in Python, knowledge of multiple packages (including data analysis).
- Practical knowledge of HPC (including TPUs), cloud frameworks and experience in large-scale experimenting (e.g., projects consisting of $\geq 50k$ experiments).
- Practical knowledge of tools related to programming and deployment (Unix/bash/docker/notions of C/etc).

OTHER ACTIVITIES

COMMUNITY SERVICE

- Member of the scientific board of the ML in PL conference (biggest conference in Poland), [link](#).
- Lecturer at the MLSS^N summer school, [link](#).
- Organizer of Reinforcement Learning Seminar, [link](#).
- Organizer of Warsaw Summer School in Probability, [link](#).

ACQUIRING FUNDING

- Multiple Polish grants (National Science Center, Foundation for Polish Science).
- European grants (European Commission People programme, Sciex Scientific Exchange Programme).

SUPERVISION OF STUDENTS AND TEACHING

- Supervising Ph.D. students; two students under my supervision defended their thesis with a honorable mentions (B. Osinski, K. Czechowski).
- Supervising multiple MA, and bachelor students. More than > 20 successfully defended thesis. Thesis of S. Tworkowski won best master thesis award.
- Running multiple courses in mathematics, calculus, probability theory and advanced courses in statistical mechanics and machine learning.

CV updated: November 17, 2024