

Alexey Skrynnik

Senior Research Scientist & Team Lead, AIRI

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Education

PhD in AI & Machine Learning: FRC CSC RAS (defended at MIPT), Moscow, Russia, 2023

MS in Computer Science: Rybinsk State Aviation Technical University, 2015 – 2017

BS in Computer Science: Rybinsk State Aviation Technical University, 2011 – 2015

Research Experience

Senior Research Scientist & Team Lead

AIRI, Cognitive AI Systems Laboratory

Moscow, Russia

July 2024 – present

- Leading an 8-person research team focused on RL, LLM/multimodal agents, and multi-agent systems
- Supervised ReSCALE, an RL-style tree-search method for LLM test-time reasoning that restores monotonic scaling with larger search budgets without retraining (ICAPS 2026)
- Led MAPF-GPT, a foundation model for multi-agent pathfinding with zero-shot generalization on unseen maps, outperforming state-of-the-art learnable solvers (AAAI 2025, Oral)

Research Scientist

AIRI, Cognitive AI Systems Laboratory

Moscow, Russia

Aug 2021 – July 2024

- Learn to Follow (AAAI 2024, Oral): combined RL and decentralized planning for lifelong multi-agent pathfinding, improving generalization with a 10x speedup over a state-of-the-art search-based solver
- Decentralized MCTS for partially observable MAPF: first MCTS approach for this setting (AAAI 2024)
- Built and open-sourced POGEMA, a benchmark platform for multi-agent pathfinding, later published at ICLR 2025
- RL Track Lead for the IGLU Competition at NeurIPS 2021 and 2022; co-developed benchmarks for collaborative embodied agents in grounded instruction-following Minecraft tasks for human-AI collaboration

Junior Research Scientist

Federal Research Center for Computer Science and Control, Russian Academy of Sciences

Moscow, Russia

Feb 2018 – Aug 2021

- 1st place at the NeurIPS 2019 MineRL Diamond Competition with a hierarchical RL approach leveraging demonstrations as human priors for long-horizon decision-making in Minecraft; first author and presenter at NeurIPS
- Researched multi-agent pathfinding, model-based RL, and visual navigation, including hybrid policy learning with classical search; published in IEEE TNNLS, Knowledge-Based Systems, and Cognitive Systems Research

Technical Skills

Core Stack: Python, PyTorch, JAX, C++

Research Areas: Reinforcement Learning, Multi-Agent Systems, Planning/Search, Imitation Learning

LLM/Agent Systems: RL for LLMs, LLM/Multimodal Agents, Test-Time Reasoning, Inference/Evaluation

Training/Infrastructure: Distributed Training, FSDP/DDP, Slurm, Ray, vLLM, VERL, HF Transformers, LoRA/PEFT

Languages: English (advanced), Russian (native)

Achievements & Service

- [Yandex ML-Prize 2024](#) – awarded for research in Reinforcement Learning, Multi-Agent RL, and Multi-Agent Systems
- [NeurIPS 2019 MineRL Diamond Competition](#) – 1st place in long-horizon RL from demonstrations (2019)
- Co-organizer & RL Track Lead: [IGLU Competition](#) at NeurIPS 2021-2022 on grounded instruction following
- Reviewing: NeurIPS, ICML, AAAI, ICLR, ACL Rolling Review, JAIR, Nature Communications

Teaching

MSU AI Masters – Advanced Reinforcement Learning: Lecturer (2025 – present)
MIPT – Reinforcement Learning, Software Tools for AI: Assistant Lecturer (2020 – 2022)
HSE – Applied Problems of Data Analysis: Lecturer (2018 – 2020)

Selected Publications

ICAPS 2026 – Revisiting Tree Search for LLMs: Gumbel and Sequential Halving for Budget-Scalable Reasoning. Leonid Ugadiarov, Yury Kuratov, Aleksandr Panov, **Alexey Skrynnik** Mar 2026

AAAI 2026 (Best Poster Award) – Camar: Continuous Actions Multi-Agent Routing. Artem Pshenitsyn, Aleksandr Panov, **Alexey Skrynnik** Jan 2026

IROS 2025 – Advancing Learnable Multi-Agent Pathfinding Solvers with Active Fine-Tuning. Anton Andreychuk, Konstantin Yakovlev, Aleksandr Panov, **Alexey Skrynnik** Oct 2025

ICLR 2025 – POGEMA: A Benchmark Platform for Cooperative Multi-Agent Pathfinding. **Alexey Skrynnik**, Anton Andreychuk, Artem Borzilov, Aleksandr Chernyavskiy, Konstantin Yakovlev, Aleksandr Panov May 2025

AAAI 2025 (Oral) – MAPF-GPT: Imitation Learning for Multi-Agent Pathfinding at Scale. Anton Andreychuk, Konstantin Yakovlev, Aleksandr Panov, **Alexey Skrynnik** Jan 2025

ACM SIGIR 2025 – IDAT: A Multi-Modal Dataset and Toolkit for Building and Evaluating Interactive Task-Solving Agents. Shrestha Mohanty, Negar Arabzadeh, Andrea Tupini, Yuxuan Sun, **Alexey Skrynnik**, Artem Zholus, Marc-Alexandre Cote, Julia Kiseleva Jan 2025

ACL 2025 – CraFText Benchmark: Advancing Instruction Following in Complex Multimodal Open-Ended World. Zoya Volovikova, Gregory Gorbov, Petr Kuderov, Aleksandr Panov, **Alexey Skrynnik** Jan 2025

ECAI 2024 – Instruction Following with Goal-Conditioned Reinforcement Learning in Virtual Environments. Zoya Volovikova, **Alexey Skrynnik**, Petr Kuderov, Aleksandr I. Panov Oct 2024

AAAI 2024 (Oral) – Learn to Follow: Decentralized Lifelong Multi-Agent Pathfinding via Planning and Learning. **Alexey Skrynnik**, Anton Andreychuk, Maria Nesterova, Konstantin Yakovlev, Aleksandr Panov Jan 2024

AAAI 2024 – Decentralized Monte Carlo Tree Search for Partially Observable Multi-Agent Pathfinding. **Alexey Skrynnik**, Anton Andreychuk, Konstantin Yakovlev, Aleksandr Panov Jan 2024

IEEE TNNLS – When to Switch: Planning and Learning for Partially Observable Multi-Agent Pathfinding. **Alexey Skrynnik**, Anton Andreychuk, Konstantin Yakovlev, Aleksandr Panov Aug 2023

NeurIPS 2022 Competition Track – Interactive Grounded Language Understanding in a Collaborative Environment: Retrospective on IGLU 2022 Competition. Julia Kiseleva, **Alexey Skrynnik**, Artem Zholus, Shrestha Mohanty, Negar Arabzadeh, Marc-Alexandre Cote, et al. Jan 2023