Arthur Jakobsson

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Education

Carnegie Mellon University 3.8/4 QPA | *Pittsburgh, PA* Expected Graduation May 2027
- Masters of Science in Robotics. Advisor: Jeffrey Ichnowski

Carnegie Mellon University 3.7/4 QPA | *Pittsburgh, PA* May 2025
- Stats & Machine Learning w/ minor in Computer Science; University Honors & School of Computer Science Honors

Research and Work Experience

Course Instructor - Principles of Imperative Computation (15-122) May 2025 – Aug 2025
- Instructor and lecturer for course of 120 students after 3 years of being TA & Head TA. I pioneered and led development of extra instruction bootcamps for over 2000 cumulative attendants.

Momentum Lab, CMU ML & Visual Manipulation Research | *Jeffrey Ichnowski* Aug 2024 – Present
- Studying dexterous manipulation of deformable objects with visual input for complex tasks such as knot tying, textile flattening and object wrapping. Received Honors in Computer Science for this research in this project. Developing mobile robot arm remote control software with Meta robotics researcher.

Search-based Pathplanning Lab, CMU ML Research | *Maxim Likhachev* Mar 2023 – May 2025
- Created postprocessing method using existing heuristic search algorithms to significantly boost ML multi-agent pathfinding success. Used machine learning to create a foundation model for better and faster results for multi-agent pathfinding. Published & presented at ICAPS 2024 and ICRA 2025.

Biorobotics Lab, CMU Computer Vision Research | *Howie Choset* Oct 2023 – Nov 2024
- Developed methods in computer vision and machine learning to analyze and detect anomalies in few-shot scenarios

Papers

Wiggle and Go! System Identification for Zero-Shot Dynamic Rope Manipulation Mar 2025-Jan 2026
- ***A. Jakobsson****, A. Mahajan, K. Pullalarevu, K. Suresh, Y. Yao, Y. Mao, B. Duisterhof, S. Syed, J. Ichnowski.* (In submission)

Work Smarter Not Harder: Simple Imitation Learning with CS-PIBT Outperforms Large Scale Imitation Learning for MAPF Mar 2024 – Aug 2024
- ***A. Jakobsson****, R. Veerapaneni*, K. Ren, S. Kim, J. Li, & M. Likhachev.* (2024). ICRA '25. **equal contribution*

Improving Learnt Local MAPF Policies with Heuristic Search June 2023 – Mar 2024
- **A. Jakobsson***, *R. Veerapaneni*, Q. Wang*, K. Ren*, J. Li, & M. Likhachev.* (2024). ICAPS '24. **equal contribution*

ExpReS-VLA: Specializing Vision-Language-Action Models Through Experience Replay and Retrieval
- *S. Syed*, Y. Ahuja*, **A. Jakobsson**, J. Ichnowski.* ICRA '26. **equal contribution*

Adversarial Game-Theoretic Algorithm for Dexterous Grasp Synthesis
- *Y. Chen, B. He, Y. Mao, **A. Jakobsson**, J. Ke, Y. Aloimonos, G. Shi, H. Choset, J. Mao, J. Ichnowski.* ICRA '26.

AI-assisted Tagging of Deepfake Audio Calls using Challenge-Response June 2020 – Mar 2024
- *G. Mittal, **A. Jakobsson**, K. Marshall, C. Hegde, & N. Memon.* (2024). AsiaCCS '25

Skills/Interests/Awards

Programming Experience: C, PyTorch, Python, R (+ggplot) C++, Java, Javascript, NodeJS

ML Development Experience: GNNs, CNNs, Diffusion, GANs, RL, image segmentation, one/few-shot learning

Interests: Photography (my photos), Biking, Badminton

Awards:
- Dean's List High Honors (Spring 2022, Fall 2023, Spring 2024), Dean's List (Fall 2022, Fall 2023)
- 1st Place Coolest Graphs (CMU Statistics Department for project: *Manrattan - A Look into NYC's Rats*).

Grants:
- NSF Discover ACCESS Grant (750k computation credits), IEEE RAS Travel Grant '25 (~$1.4k), Dietrich Parent Fund '24 (~$1.9k), Dietrich Parent Fund '25 (~$400)