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

Research Intern, DENSO Pittsburgh Innovation Lab May 2026 – Aug 2026
- Designed and built RareOcc, a controllable 4D occupancy and LiDAR generator that synthesises sensor data for long-tail and crash-grounded driving scenes. Oral at ECCV '26 SDAD Workshop; extending towards CVPR '27.

Momentum Lab, CMU ML & Visual Manipulation Research | *Jeffrey Ichnowski* Aug 2024 – Present
- Developing visual and sensing learning methods for active sensing in dynamic and dexterous manipulation; awarded SCS Honors for this work. Building mobile-manipulator teleoperation infrastructure with a Meta robotics researcher. Research in collaboration with CMU's BIG Lab (*Jean Oh*).

Course Instructor - Principles of Imperative Computation (15-122) May 2025 – Aug 2025
- Sole instructor and lecturer for a 120-student course after three years as TA and Head TA. Founded and led the extra-instruction bootcamp programme, reaching over 2000 cumulative attendees.

Search-based Pathplanning Lab, CMU ML Research | *Maxim Likhachev* Mar 2023 – May 2025
- Designed heuristic-search methods that make learned multi-agent pathfinding policies collision-free and sharply raise success rates, then showed a simple imitation-learning policy built on them outperforms large-scale learned baselines. Two co-first-author papers, presented at ICAPS '24 and ICRA '25.

Papers (for full list please see my Google Scholar)

Wiggle and Go! System Identification for Zero-Shot Dynamic Rope Manipulation
- ***A. Jakobsson****, A. Mahajan, K. Pullalarevu, K. Suresh, Y. Yao, Y. Mao, B. Duisterhof, S. Syed, J. Ichnowski.* CoRL '26

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

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

RareOcc: Controllable 4D Occupancy and LiDAR Generation for Long-Tail Driving Scenes
- ***A. Jakobsson****, Y.-R. Tuan, L. Julian, S. Hunt, K. Suzuki, S. Tanaka, M. Bandegi, J. Gloomis, H. Fujiyoshi, K. Kitani, J. Ichnowski.* ECCV '26 SDAD Workshop (Oral)

Intercepting the Future: Latent-Space Predictive World Model for Dynamic VLA Manipulation
- *S. Syed,* ***A. Jakobsson****, H. Hao*, J. Ichnowski.* CoRL '26. **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*

Web2Grasp: Learning Functional Grasps from Web Images of Hand-Object Interactions
- *H. Chen, Y. Yao, Y. Ye, Z. Xu, H. Bharadhwaj, J. Wang,* ***A. Jakobsson****, R. Zhao, S. Tulsiani, Z. Erickson, J. Ichnowski.* IROS '26

Skills/Interests/Awards

Programming: C, PyTorch, Python, R (+ggplot), C++, Java, Javascript, NodeJS. **ML:** 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 Dept. (*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)