Arthur Jakobsson

ajakobss@cmu.edu | 650-963-6808 | LinkedIn: arthurjakobsson | arthurjakobsson.com

EDUCATION

Carnegie Mellon University 3.69/4 QPA | *Pittsburgh, PA*   Expected Graduation May 2025
- Major in Statistics & Machine Learning w/ minor in Computer Science (Bachelor of Science)
- Selected Coursework: Computer Vision (PhD level), Visual Learning and Recognition (PhD level), Deep Learning (Masters level), Parallel & Sequential Algorithms, Computer Systems, Functional Programming, Cognitive Robotics, Convex Optimization (PhD Level), Statistical Graphics and Visualization

RESEARCH AND WORK EXPERIENCE

Principles of Imperative Computation (15-122) | *Course Instructor*   May 2025 – Present
- Instructor and lecturer for course after 3 years of being TA & Head TA. As a TA, I pioneered and led development of extra instruction bootcamps for over 1000 cumulative attendants. Developing course infrastructure, managing students & course staff, leading recitations (∼40 students).

Momentum Lab, CMU ML & Visual Manipulation Research | *Jeffrey Ichnowski*   Aug 2024 – Present
- Proposed and pursued Honors Computer Science Senior Thesis, advised by Professor Ichnowski. Studying dexterous manipulation of rope and textile with visual input for complex tasks such as table flattening and folding.
- Joined a team investigating how to leverage sound and visual information to improve contact and hand pose estimation for hand-object interaction.

Search-based Pathplanning Lab, CMU ML Research | *Maxim Likhachev*   Mar 2023 – May 2025
- Engineered postprocessing method using existing heuristic search algorithms to significantly boost ML multi-agent pathfinding success rates. Published & presented oral paper at ICAPS 2024.
- Using machine learning to generate better and faster results for multi-agent pathfinding (e.g. applicable for pathfinding for robots in warehouses or self-driving cars). Paper accepted to ICRA 2025.

Biorobotics Lab, CMU Computer Vision Research | *Howie Choset*   Oct 2023 – Nov 2024
- Developing methods in computer vision and machine learning to analyze and detect anomalies in few-shot scenarios. Focus on GANs, and diffusion for image segmentation and anomaly detection. Working for ARPA-E Mapping project (Hackster article) for robot gas pipe mapping and repair.

NYU's Center for Cybersecurity Research Scholar | *Nasir Memon*   June 2020 – Mar 2024
- Developed a CAPTCHA-like technology for identifying and detecting voice deepfakes using GANs on a high-performance computing cluster.

PUBLISHED PROJECTS

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

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

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

Contact Tracing using Bluetooth: Keeping Privacy while Gaining Freedom   May 2020
- Explained and analyzed Bluetooth Contact Tracing in light of the COVID-19 epidemic. Published in *Awareness Journal of Public Safety Studies in America*, Summer 2020, also available here.

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

Languages: English, Swedish. Elementary: Thai, Japanese, Spanish

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*).