Arthur Jakobsson

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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, Probability and Statistical Inference, Statistical Graphics and Visualization

The Harker School | *San Jose, California*　　　　　　　　　　　　　　Aug 2017 – May 2021

RESEARCH AND WORK EXPERIENCE

Search-based Pathplanning Lab, CMU ML Research | *Maxim Likhachev*　　　Mar 2023 – Present
- 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.

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 textile with visual input for complex tasks such as table flattening and folding.

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.

Principles of Imperative Computation (15-122) | *Teaching Assistant*　　　　Aug 2022 – Present
- TA & Head TA (N23) - Pioneered and led development of extra instruction bootcamps for over 1000 cumulative attendants. Developing course infrastructure, managing students & course staff, leading recitations (∼40 students)

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). Submitted 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.

Tracking Across Physical and Online Domains | *NodeJS, Firebase, HTML*　　June 2019 – Aug 2019
- Improve personalization and tracking, for services, especially related to first responder searches. 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)
- 1st Place Coolest Graphs (CMU Statistics Department for project: *Manrattan - A Look into NYC's Rats*, link).