Kathryn Wantlin

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Education

PRINCETON UNIVERSITY Princeton, NJ
Ph.D., Computer Science May 2028
M.S.E., Computer Science May 2023
Relevant Courses: Machine Learning & Pattern Recognition, Probabilistic Modeling, Robotic Planning, Dynamics and Control of Multi-Agent Systems, Probabilistic Topics in RL, Information Theory, Computer Vision
Teaching Experience: Introduction to Machine Learning, Algorithms/Data Structures, Introduction to Computer Science

HARVARD UNIVERSITY Cambridge, MA
A.B., Computer Science, Economics Secondary, Chinese Language Citation May 2021
Relevant Courses: Machine Learning, Multi-Robot Systems, Autonomous Robot Systems, Embedded Systems, AI for Social Impact, Digital Fabrication, Data Visualization, Research Topics in HCI, Abstraction and Design in Computation
Teaching Experience: Multi-Robot Systems - Control, Communication, and Security, Mathematics for Computation, Statistics, and Data Science

Skills

Programming: Python, Java, Javascript, ROS, C++, MATLAB, MuJoCo, Sklearn
Machine Learning Frameworks: PyTorch, JAX

Publications

Barnett, S., **Wantlin, K.,** Adams, R.P.
Measuring Cooperation with Counterfactual Planning
Conference on Game Theory and AI for Security (GameSec) 2025

Leonard, N.E., Cox, J., Trueman, D., Santos, M., **Wantlin, K.**, Han, I.X., Witzman, S., James, T.
Rhythm Bots
Neural Information Processing Systems (NeurIPS) 2024, Creative AI Track
International Conference on Robotics and Automation (ICRA) 2022, Workshop on Robotics and Art

Preprints

Wantlin, K., Zheng, C., Eysenbach, B.E.
Consistent Zero-Shot Imitation with Contrastive Goal Inference

Ghugare, R., Ji, C., **Wantlin, K.**, Schofield, J., Eysenbach, B.E.
BuilderBench — A Benchmark for Generalist Agents

Wantlin, K., Wu, C., Huang, S.C., Banerjee, O., Dadabhoy, F., Mehta, V.V., Han, R.W., Cao, F., Narayan, R.R., Colak, E., Adamson, A. S., Heacock, L., Tison, G.H., Tamkin, A., Rajpurkar, P.
BenchMD: A Benchmark for Universal Learning on Medical Images and Sensors

Research Experience

MIT Center for Brains, Minds and Machines Massachusetts Institute Of Technology
Summer School Program Aug. 2025
- Engineered planning capabilities for token generation in autoregressive LLMs. Compared search capabilities of autoregressive vs. diffusion model architectures and measured alignment. Advised by Dr. Brian Cheung

Google DeepMind Princeton / Princeton University Princeton University
Summer Research *w/ Prof. Elad Hazan* Jun. 2025 – Present
- Apply spectral filtering methods to build world models for long-horizon planning and control

Princeton RL Lab Princeton University
Graduate Research w/ Prof. Ben Eysenbach Jan. 2024 – Present
- Developed a theoretically consistent goal-conditioned imitation learning algorithm with temporal contrastive learning and self-directed goal exploration

Laboratory for Intelligent Probabilistic Systems Princeton University
Graduate Research w/ Prof. Ryan Adams Jun. 2022 – Present

- Utilized spatial point processes and continuous-time MCMC to perform inverse design of emergent shape formation in morphogenetic systems
- Developing causal representation learning methods for solving robotic assembly problems

Harvard Medical AI Lab Harvard Medical School
Visiting Graduate Research Fellow w/ Prof. Pranav Rajpurkar Nov. 2021 – Jan. 2024

- Combined deep learning Viewmaker networks with hand-generated data augmentations to improve performance for self-supervised learning in VAE models for ECG classification
- First-author Medical AI Benchmark using self-supervised algorithms to investigate generalization of multi-modality models under clinically-relevant distribution shifts (https://github.com/rajpurkarlab/BenchMD)

Leonard Robotics Lab Princeton University
Graduate Researcher w/ Prof. Naomi Leonard Sept. 2021 – May 2023

- Utilized Yolov3 and Deep SORT models to detect/rack humans and define motion of interactive robotic system via nonlinear opinion dynamics models (NeurIPS 2024 Creative AI Track, ICRA 2022 Workshop on Robotics and Art)

Harvard Economics and Computer Science Research Group Harvard University
Undergraduate Thesis w/ Prof. David Parkes Sept. 2020 – May 2021

- Designed auction-based information exchange policies for robots engaged in cooperative mapping tasks, demonstrating increased robustness to routing failure

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Professional Experience

MIT Lincoln Laboratory - Advanced Systems and Capabilities Group Lexington, MA
Summer Research Intern Jun. 2021 – Aug. 2021

- Optimized GPS-free autonomous flight algorithms using keypoint identification and matching
- Reduced system memory usage 4x while maintaining navigation performance by experimentally confirming optimal data redundancy in keypoint matching scheme
- Quantified receptive field of utilized neural networks and visualized attention network weights to interpret model performance

Hewlett Packard Enterprise Seattle, WA
AI Engineer Intern May 2020 – Aug. 2020

- Modularized AutoML tool's data manager to in-memory backend, improving data processing speeds by 60%
- Wrote computer vision data pre-processing node for prebuilt AutoML workflow in Jupyter Notebooks; notebooks served as user tutorials/documentation upon tool's release

Harvard University Derek Bok Center Cambridge, MA
Learning Lab Undergraduate Fellow Oct. 2019 – Aug. 2020

- Designed Slack analytics dashboard with D3 to help staff gauge project engagement across the Bok Center
- Worked with team of Fellows to create comprehensive tutorials on digital art technologies for classrooms, including Adobe Illustrator/After Effects; reproduced a section of a professional Vox video to demonstrate the creative process

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Leadership/Volunteer Experience

International Conference on Learning Representations (2025-2026) – *Reviewer*

Machine Learning for Health Symposium (Collocated with NeurIPS 2022) – *Reviewer*

Princeton ReMatch Mentoring Program (2021-2022) – *Computer Science Mentor*

Honors and Awards

Princeton Computer Science Department Tapia Scholarship (2025)

Princeton School of Engineering and Applied Science (SEAS) Travel Grant (2024)

Princeton University Gordon Y.S. Wu Fellowship in Engineering (2023)

Princeton University Teaching Assistantship, Full Graduate Funding (2021-2023)