Kathryn Wantlin

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Education

PRINCETON UNIVERSITY Princeton, NJ
M.S.E., Computer Science May 2023
Overall GPA: 3.93/4.00
Relevant Courses: Machine Learning & Pattern Recognition, Probabilistic Modeling, Collective Intelligence - Dynamics and Control of Multi-Agent Systems, Information Theory, Computer Vision
Teaching Experience: Introduction to Machine Learning, Algorithms and Data Structures, Computer Science - An Interdisciplinary Approach

HARVARD UNIVERSITY Cambridge, MA
A.B., Computer Science, Economics Secondary, Chinese Language Citation May 2021
Overall GPA: 3.82/4.00, High Honors; Concentration GPA: 3.89/4.00
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 (Graduate Level), Mathematics for Computation, Statistics, and Data Science

Conference Proceedings

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 Modality-Agnostic Learning on Medical Images and Sensors
Under Review

Workshop Proceedings

Leonard, N.E., Santos, M., Witzman, S., Han, I.X., **Wantlin, K.**, Marshall, S.
Rhythm Bots
IEEE International Conference on Robotics and Automation (ICRA) 2022, Workshop on Robotics and Art

Research Experience

Laboratory for Intelligent Probabilistic Systems Princeton University
Master's Thesis Jun. 2022 – Present

- Utilized spatial point processes and MCMC methods to derive stationary distributions from birth-death interactions and study decentralized biological shape formation

Harvard Medical AI Lab Harvard Medical School
Visiting Graduate Research Fellow Nov. 2021 – Present

- Combined deep learning Viewmaker networks with hand-generated data augmentations to improve performance for self-supervised learning in VAE models
- Used domain-agnostic transformers and self-supervised algorithms to investigate generalization of medical AI models under clinically-relevant distribution shifts (paper in submission)

Leonard Robotics Lab Princeton University
Graduate Researcher Sept. 2021 – Present

- Utilized computer vision to detect human observers and define motion of "Rhythm Bots" kinetic art installation via space-filling parametric equations and N-body simulations (accepted to ICRA 2022 Workshop on Robotics and Art)
- Investigated effective policy parameterization techniques in common payoff pure coordination games to accelerate self-play RL training and enable zero-shot generalization

Harvard Economics and Computer Science Research Group Harvard University
Undergraduate Thesis Sept. 2020 – May 2021

- Developed market-based method of efficient self-interested multi-agent navigation in an unknown environment using an information market

- Used auction-based policies under varying information-sharing conditions to determine optimal division of cooperative mapping tasks and reduce chance of routing failure

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%
- Programmatically launched KeyDB clusters on supercomputers using Slurm to handle large datasets over multiple compute nodes
- 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
- Developed creative pedagogy initiatives supporting Harvard University courses
- 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

Champion REIT Hong Kong, China
Asset Management Intern June 2019 – Aug. 2019
- Studied interest rate prediction research publications to develop HIBOR forecast model in R based on macroeconomic indicators; used to identify optimal monthly borrowing periods, contributing to selection of corporate loans

Harvard Student Agencies Cambridge, MA
GroupGear Brand Manager Sept. 2017 – Nov. 2018
- Lead team of Account Managers to push overall margins past 35% and create 104% revenue growth
- Expanded graduation merchandise partnership from $20k to $60k and secured partnerships with over 30 HKS Executive Education and Masters' Programs

Leadership/Volunteer Experience

NeurIPS Workshop on Learning from Time Series for Health (2022) **–** *Reviewer*

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

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

HackHarvard Board (2020) **–** *Design Lead*

Harvard Association for US-China Relations (2019) **–** *Conference Director*

Harvard University Women in Business (2018) **–** *Conference Director*

Honors and Awards

Princeton University Teaching Assistantship, Full Funding (2021)

Tapia Conference Scholarship Recipient (2021)

U.S. Presidential Scholar (2017)

National Merit Scholarship Recipient (2017)

American Regional Mathematics League National Finalist (2017)