Kathryn Wantlin

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Education

PRINCETON UNIVERSITY   Princeton, NJ
M.S.E., Computer Science   May 2023
Overall GPA: 3.85/4.00
Relevant Courses: Machine Learning/Pattern Recognition, Computer Vision, Probabilistic Modeling, Information Theory

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, AI for Social Impact, Digital Fabrication, Data Visualization, Research Topics in HCI, Multi-Robot Systems, Autonomous Robot Systems, Abstraction and Design in Computation, Embedded Systems

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Research Experience

Harvard Medical AI Lab   Harvard Medical School
Visiting Research Fellow   Nov. 2021 – Present
- Combined deep learning Viewmaker networks with hand-generated clinical data augmentations to improve performance for unsupervised learning of heart arrhythmia classes from electrocardiogram data

Leonard Lab   Princeton University
Research Assistant   Sept. 2021 – Present
- Utilized computer vision to detect human observers and define motion of "Rhythm Bots" kinetic art installation via family of space-filling parametric equations
- Extended "Rhythm Bots" project to investigate zero-shot communication protocols between human gesturers and robot interpreters via Lewis Games

Advanced Systems and Capabilities Group   MIT Lincoln Labs
Summer Research Intern   Jun. 2021 – Aug. 2021
- Analyzed data generation algorithms for project on vision-aided aerial navigation via deep learning
- Quantified aspects of neural networks for improved interpretability and created data visualizations for analysis
- Reduced system memory usage 4x while maintaining navigation performance

Dr. Stephanie Gil   Harvard University
CS Research Assistant   Nov. 2020 – Jan. 2021
- Investigated several model alternatives for capturing a dynamic taxi routing problem, such as flow allocation, Voronoi region assignments, and multi-agent reinforcement learning
- Developed cost function for rollout method to balance minimization of overall passenger wait times with minimization of dissatisfied passengers
- Utilized a CRAWDAD dataset to establish discretized graph representation of the map and prior probabilities of passenger appearances at each location

Dr. David Parkes & Dr. Sarah Keren   Harvard University
Thesis Research   Sept. 2020 – May 2021
- Developed market-based method of efficient self-interested multi-agent navigation in an unknown environment using an information market
- Iterated over set of short-term and long-term policies, in both common and individual mapping settings, to best select destinations and reduce chance of routing failure, with auction-based assignment of bidders to published waypoints

Dr. Sarah Keren   Harvard University
CS Research Assistant   May 2020 – Sept. 2020
- Simulated and evaluated robotic environments with different control mechanisms, including decentralized and market-based approaches, using OpenAI Gym taxi domain and Turtlebot3 testbeds
- Created ROS package to compute path-planning costs and execute navigation via ROS low-level base commands, SLAM, and AMCL; package used by several other researchers who are working on multi-agent simulations

Work Experience

Harvard University
Teaching Assistant

Cambridge, MA
Jan. 2019 – Dec. 2020

- Developed programming assignments and discussion section material for graduate class on Multi-Robot Systems with Dr. Stephanie Gil
- Led seminars and office hours for Mathematics for Computation, Statistics, and Data Science with Dr. Paul Bamberg

Hewlett Packard Enterprise
AI Engineer Intern

Seattle, WA
May 2020 – Aug. 2020

- Modularized AutoML tool's data manager to in-memory KeyDB backend, improving data processing speeds by 60%
- Programmatically launched KeyDB clusters on supercomputers using Slurm to enable handling of large datasets over multiple compute nodes
- Contributed computer vision data preprocessing node to set of team-written prebuilt workflows in Jupyter Notebooks; notebooks served as user tutorials/documentation upon tool's internal release

Harvard University Derek Bok Center
Learning Lab Undergraduate Fellow

Cambridge, MA
Oct. 2019 – Aug. 2020

- Designed Slack analytics dashboard with D3 and wrote tutorials for other Fellows' to recreate my project
- Worked with team of fellows to create comprehensive tutorials on technologies for classrooms, including Adobe Illustrator and After Effects; recreated a section of a professional Vox video to demonstrate the creative process

Champion REIT
Asset Management Intern

Hong Kong, China
June 2019 – Aug. 2019

- Studied interest rate prediction research publications to code 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
GroupGear Brand Manager

Cambridge, MA
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 Experience

HackHarvard Board
Design Lead

Cambridge, MA
Aug. 2019 – Dec. 2020

- Utilized Adobe Illustrator to design logos and merchandise and coordinate distribution of products for 500 attendees, staff and sponsors

Harvard Association for US-China Relations
Summit for Young Leaders in China Conference Junior Director

Cambridge, MA
Sept. 2018 – Oct. 2019

- Recruited over 100 seminar leaders for a Chinese conference serving 1300 students
- Guided Beijing seminar leaders to craft 32 six-day classes and managed on-site logistics for all US staff
- Coordinated formation of over 50 workshops with Harvard professors for H/XWeek and Dean's List conferences