Milo Knowles

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Profile

Mission-driven software engineer with a masters degree in artificial intelligence. Excited to apply my broad software background towards challenging and underserved problems in climate, sustainability, and animal welfare. Through prior research and industry roles, I've gained extensive experience in computer vision, machine learning, and autonomous robotics.

Education

M.Eng, Artificial Intelligence

`Cambridge, MA | Sept 2015 - Jun 2019`

Massachusetts Institute of Technology

B.S, Computer Science

`Cambridge, MA | Sept 2019 - Sept 2020`

Massachusetts Institute of Technology

Work Experience

Blue Meadow — *Founder & CEO*

`Cambridge, MA | Sept 2020 - Dec 2021`

Initially developed an IoT monitoring system for seaweed farms, and later pivoted to a carbon monitoring and verification platform for coastal restoration projects. Accepted into SeaAhead's 2021 BlueSwell accelerator. Gained experience with pitching, customer discovery, market research, hardware prototyping, remote sensing, and grant writing.

Robust Robotics Lab (MIT CSAIL) — *Research Assistant*

`Cambridge, MA | Aug 2016 - Sept 2020`

My masters thesis focused on uncertainty learning and online adaptation for deep stereo depth estimation. As an undergraduate, I worked on projects in monocular visual odometry.

Skydio — *Autonomy Software Intern*

`Redwood City, CA | Jun 2019 - Aug 2019`

Developed an early prototype of Skydio's 3D Scan software, which allows a drone to rapidly explore, map, and image structures. I worked on mapping algorithms (C++) and a web application (Three.js) for overlaying aerial imagery on structures.

AdaViv — *Robotics Intern*
`Cambridge, MA | Jan 2018 - Mar 2018`

Implemented a visual odometry pipeline for estimating the pose of a greenhouse camera system and stitching together overhead imagery.

Optimus Ride — *Perception Software Intern*
`Boston, MA | Jun 2018 - Aug 2018`

Implemented computer vision software for auto-generating lane and curb maps based on LiDAR data. Primarily worked with C++, OpenCV, and the Qt framework.

Kespry — *Software Engineering Intern*
`Menlo Park, CA | May 2017 - Aug 2017`

Built a web application to streamline training data annotation for deep learning models. This enabled fast internal development and QA on new ML products, such as a rooftop hail damage detection. Gained full-stack web experience in Node.js, PostgreSQL, and Python.

Software Skills

Coding Languages: C++, Python, C#, Javascript, R, MATLAB, CUDA

Robotics & Vision: ROS, OpenCV, LCM, Unity3D, GTSAM

Machine Learning: PyTorch

Web: React.js, Node.js, Flask, HTML, CSS, Bootstrap, SQL, Three.js

Selected Coursework

Machine Learning and Data Science
Applied Machine Learning
Optimization for Machine Learning
Machine Learning in Politics

Computer Vision and Robotics
Advances in Computer Vision
Computational Photography
Robotics: Science and Systems
Principles of Autonomy and Decision Making

Computer Science
Algorithms for Inference
Design and Analysis of Algorithms
Computation Structures
Computer System Engineering

Computational Biology
Biomolecular Feedback Systems
Intro to Computational Biology

Publications

M. Knowles, V. Peretroukhin, W.N. Greene, and N. Roy, "Toward Robust and Efficient Online Adaptation for Deep Stereo Depth Estimation," in *International Conference on Robotics and Automation (ICRA),* 2021. Available: http://groups.csail.mit.edu/rrg/papers/knowles-icra21.pdf.