Mark Dyehouse

Roboticist/Software Eng.

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About me

I am part-scientist, part-engineer aspiring to make the world more accessible for all. I aim to do this by breaking down barriers to better enable people to collaborate and interact with each other to explore the world and beyond.

Skills

Programming: Python, C, C++, Scala, Matlab, ML
Other: Git, gdb, Solidworks, NumPy, OpenCV, ROS, Apache Kafka and Spark, Sci-kit packages, Agile (scrum), rapid prototyping, automated unit/integration tests, microcontrollers, mechatronics, sensors, SPI, I2C
Language: Mandarin Chinese (written and conversant)

Interests

Swarm robotics, embedded systems, soft robotics, localization, artificial intelligence (including machine learning), mechatronics, novel locomotion

On the Side

ESL tutor, Machine Learning tutor, Palantir Puzzle Hunt (2013-15,19); Extra for Netflix show: Mindhunter; CMU Ski Team 2014-16; International Justice Mission Co-President CMU chapter; Dossier Art Magazine Editor

Education

Ongoing	Masters of Science in Robotics Northwestern University	Evanston, IL, USA
2011-2016	Bachelors of Science in Physics, Minor in Chinese Studies Carnegie Mellon University	Pittsburgh, PA, USA
2013	Study Abroad Shanghai International Studies University	Shanghai, China

Awards

2018	1st Place: robotics competition, Northwestern: Drawing With Sawyer (`https://www.youtube.com/watch?v=AccB97JPMUE`)
2018	Omnicell company hackathon Most Cross-Functional Product award
2016 Spring	Deans List with High Honors
2013	Pickering Scholarship for study abroad in Shanghai, China

Work Experience

2018	Software Engineer Backend engineering with Scala and Spark for streaming ETL of telemetry data processing pipeline; design, development, and testing; team won regional company hackathon's "Most Cross-Functional Product" award	Omnicell
2017-18	Software Developer Backend software development for data ingestion (ETL) pipeline	Management Science Associates, inc.
2016	Research Assistant Designed, built prototype of closed-loop inflatable aeroponic plant habitat for Mars (small team); Presented poster at American Society of Gravitational and Space Research 2016 Conference	Carnegie Mellon University School of Architecture
2016	Research Assistant Perception pipeline, region of interest specifier for classifier, gui for data labeling	Carnegie Mellon University School of Computer Science
2015	College Student Technical Specialist Dev-ops, software development, and network engineering	Lockheed Martin
2014	Research Assistant Characterized liquid-liquid interfacial isotherm, analyzed microscope image data; Pennsylvania Space Grant (NASA) funded	Carnegie Mellon University Physics Department

Projects

2019	Robot for granular medium subsurface movement and navigation: MS in robotics final project; I am responsible for research, design, fabrication, implementation, controls, testing, and documentation under an adviser at Northwestern
2019	Soft deformable snake robot made from McKibben muscles and other inflatable components
2019	Sensor network from scratch, localize mobile robot
2019	Multi-language conversational chatbot using Transformer model
2018	Drawing with Sawyer: Path-planning and image-processing
2018	Swarm sorting of Kilobot Robots by Size using Brazil Nut Effect
2018	Local coordinate system creation and use in Kilobot robot swarm
2018	Built from scratch: Optimized binary decision trees, multinomial logistic regression: speech predictions; neural net with customizable hidden layers and units: optical character recognition
2017	Built Scala Trie for Spark GraphX, Spark ML
2016	Language classification (multiple languages), transcription (English) using only visual data
2015	Pololu 3pi robot programming for line following with onboard sensors, use servo motors to draw lines with a pen
2014	Build18 Competition: knock triangulation, piezo element sensors