Timothy Lin

www.linkedin.com/in/tmthyln
github.com/tmthyln

Education

University of Maryland, College Park, *B.S. Computer Science '20* 3.9 GPA
Anticipating M.S. Computer Science '21

Relevant Coursework

- Machine Learning (3 classes)
- Data Science
- Advanced Data Structures
- Visualization with Mathematica
- Algorithms; Design and Analysis of Algorithms
- Concurrent, Parallel, and Distributed Programming

Language Skills

- Python (proficient)
- Java (proficient)
- C (proficient)
- Mathematica (familiar)
- Julia (familiar)
- MATLAB (familiar)
- C++ (familiar)

Experience

U.S. Department of Defense

Computer Science Research Intern [TS//SCI cleared w/ full scope polygraph] May '19 – Aug '19

- Supported the development of a visualization tool to enable rapid triage of large amounts of multimedia data
- Adapted a web app to ingest and visualize different types of multimedia data in JavaScript (AngularJS) for the frontend and Java (Spring interfacing with Elasticsearch) for the backend
- Ran experiments to investigate the visualization quality based on different neural networks, training methods, and hyperparameters for the UMAP dimensionality reduction algorithm
- Implemented modifications to the algorithm that improved the performance and quality of the visualization, making triage easier
- Processed different multimedia datasets to verify the visualization/clustering quality and validate experiments

UMD Loop (SpaceX Hyperloop Competition)

Avionics System Lead Sept '18 - *present*

- Track, spec, and evaluate all low- and high-voltage electrical/electronic components on the pod (the vehicle)
- Research and validate control algorithms and riskier avionics endeavors, such as designing and constructing our own motor controller
- Design and verify inter-microcontroller communication protocols (using CAN between microcontrollers and using UDP between on and off the pod)
- Design the integration and testing of all subsystems from the avionics side, including the sensors, actuators, and the state machines
- Built and integrated large parts of the low voltage avionics system and the high-voltage power system
- Defended and demonstrated the avionics system to professional engineers evaluating our design

Software Engineer Sept '17 – Aug '18

- Worked on sensor fusion at moderate frequencies with inertial measurement sensors to obtain velocity to within 1 m/s for use in linear induction motor control
- Developed procedures and test plans for algorithm verification and on-site operations
- Worked with a team to investigate the viability of various mechanical actuation methods to our use case

FIRE Capital One Machine Learning Research Stream

Research Fellow & Peer Mentor Jan '18 - *present*

- Design and implement a novel neural network model for object tracking
- Mentored student researchers in computer vision and natural language projects and taught tutorials on the basics of machine learning and working with data
- Participated in the design of a model for real-time video object segmentation and tracking in the domain of autonomous vehicles evolving from the Mask RCNN architecture
- Implemented a data pipeline for and performed data analysis on several image segmentation and object detection data sets

UMD Computer Science Department

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Undergraduate Teaching Assistant for Object-Oriented Programming I & II — Aug '18 - *present*

- Moderate and answer thousands of questions on the online Piazza (Q&A) forum
- Teach discussion (lab) sections weekly, hold office hours, and proctor exams and quizzes
- Grade quizzes, exams, and coding projects throughout the semester and over breaks

FIRST Robotics Team 2537

Lead Systems Engineer, Team Captain — Aug '16 – Aug '17

- Managed technical budgets: volume, interference, electrical power, and mass as well as programmatic: resources, time, and scheduling ensuring that all constraints and requirements are met
- Produced an integrated design (including an overall CAD model) and inter-system interface specifications
- Led the integration of mechanical, software, and electrical subsystems as well as overall robot integration
- Team (via alliance) placed 4th at the World Championships directly due to my actions
- Director's Award (internal leadership award—single most prestigious award given this year from pool of 80)

Software and Control Systems Lead — Sept '14 – Aug '16

- Implemented a requirements-based approach to software design that utilized use case analysis and modular, top-down design
- Guided the design of and developed control algorithms for controlling robotic mechanisms
- Oversaw software development and designed top-level software while communicating requirements across teams
- Taught programming concepts and coding to new and veteran team members
- Excellence in Teamwork Award, Excellence in Leadership Award (internal leadership award, 7 from pool of 70) in recognition of demonstrated leadership

Core Software Developer — Sept '13 – Aug '14

- Designed and programmed critical components of the software using state machines for complex actuation
- Excellence in Engineering Award (15 from pool of 65) in recognition of accomplishments that directly impacted the team's performance