

# HENRY LEE

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## EDUCATION

**B.S. Computer Science**, University of Minnesota – Twin Cities

**Jan 2019 – May 2021**

**CGPA:** 3.60 / 4.00 | **Technical GPA:** 3.71 / 4.00 | **Award:** Dean's List

**Relevant Courses:** Algorithms & Data Structure, Machine Architecture and Organizations, Operating System, Computer Network, Software Engineering, Internet Programming, Discrete Structures

## EXPERIENCES

### Software Engineer Intern

#### Intel Corporation

**May 2020 – Sep 2020**

- Reduced and automated  $\approx 50\%$  of weekly manual activity for operations team by developing a deep dive analysis tool.
- Optimized runtime of regtest progression tool by 44% through Perl to Python migration and algorithm refactorization.
- Recovered 33% of test machine failures by integrating data analysis and visualizations for regtest comparison tool with Site Reliability Engineers.
- Redesigned architecture with OOP Interfaces to enhance code scalability increasing efficiency of regtest checker and analysis modules modification by 30%.
- Implemented machine learning in Python to predict regtest progressions by correlating 1.6 million regtests' attributes resulting in a 40%-60% accuracy.

### Student Software Developer

#### UMN Center for Filtration Research

**Jan 2020 – Present**

- Developed a full stack web application for 20+ CFR members collaborating with UMN's air filtration research.
- Improved effectiveness of data referencing for researchers by  $\approx 50\%$  by integrating data analysis and visualization on 5 years historical and real-time data using matplotlib.
- Reduced 73% of the loading time of 5 years historical data visualization by caching reusable data from API calls in an implemented backend SQLite3 database.
- Built REST API endpoints accessing configurable filter modeling visualization using REST Django frameworks.
- Integrated the frontend with HTML, JavaScript and the development of server with Python Django framework libraries.

### Student Software Developer

#### Minnesota Traffic Observatory

**June 2019 – Sep 2019**

- Developed a beacon using micro-controllers working with the GPS and LTE modules in Python.
- Reduced 35% of power consumption by refactoring existing algorithm to switch power consuming modules effectively.
- Improved code readability by implementing OOP structure, writing documentations and code groupings, saving 3.5 hours of average modification time per week.
- Manage migration of 500+ lines of code from an existing prototype in PyBoard to a new IoT Pycom development board.

## PROJECTS ([Portfolio](#))

### Autonomous Self Driving Car with Udacity (*Ongoing*)

- Integrated OpenCV to read frames, edges, mask Region of Interest (ROI) and determine Hough Lines for finding lanes.
- Create and train a neural network model using TFLearn with 10,000+ datasets of frames and car control-keys in Numpy.

### Guide Glasses for the Blind

- Implemented ultrasonic and infrared sensors to detect surroundings converting information into sound vary by volume
- Integrated GPS module for location tracking by logging coordinates to a Web App deployed with Google Maps API.
- Implemented Python automated speech libraries to provide time and weather information timely.

### Path-Finding Visualizer ([Website](#))

- Built React JS application for visualizing pathfinding with the implementation of 4 different pathfinding algorithms.

## SKILLS

**LANGUAGES:** Java , Python , C , C++ , HTML & CSS , JavaScript, PHP ,OCaml , Perl

**TECHNOLOGIES:** React JS , Python Django , Node JS (Express) , MySQL , SQLite3 , OpenCV , TFLearn , Raspberry PI