# Hwei-Shin Harriman

## EDUCATION

**Olin College of Engineering, Needham, MA**

Candidate for Bachelor of Science in Computer Engineering, Class of 2021

- Recipient of 4-year, 50% Olin Merit Scholarship
- Unweighted GPA: 3.96

## EXPERIENCE

**Software Engineering Intern – Tableau**

**Full Stack developer** *(May 2020 to present)*

Developing initial implementation of AutoSave for Tableau's browser-based editor

- Creating UI draft indicators with React; these components are used by multiple teams
- Creating actions, sagas, reducers, and requests to asynchronously fetch or discard drafts, and re-render relevant components with draft indicators efficiently
- Collaborating with external teams and designers
- Using Node.js to mock server behavior for rapid testing
- *UI/UX*: React / Redux, Typescript, REST API. *Back end*: Java, Spring, PostgreSQL. *Unit/ integration tests*: Enzyme, Sinon, Webdriver, Chai. *Version control*: Git

**Full Stack developer** *(May 2019 to August 2019)*

Built 'Go To Sheet' action in Tableau's browser-based editor

- Created dialog where user can create or edit an action
- Created endpoints and backend logic to fetch, make, discard actions
- *UI/UX*: Typescript, React. *Back end*: C++, existing Tableau API. *Unit tests*: CppUnit, Jasmine *Version control*: Git, Perforce

**Student Researcher – EASE Lab (NDA)** *(November 2019)*

Created interactive prototype demonstrating inventive use of Microsoft Azure Kinect

- Programmed real-time, interactive proof of concept
- Used C++, OpenGL, Azure Kinect and Kinect SDK

**Python Course Assistant – Olin College of Engineering** *(January 2019 to May 2019)*

In and out of class, helped students of Olin's introductory Python course, by: answering questions about course material, grading projects and homework, debugging, encouraging coding best practices

## PROJECTS

**Research Buddy with Topic Modeling** *(December 2019)* github.com/epan547/Topic-Modeling-Buddy

- Created program that dynamically suggests related search topics to user using topic modeling ML algorithms and web scraping using Pytorch, pandas, sklearn, matplotlib
- Automatically generated word clouds to visualize the relevance of each suggested topic
- Identified and analyzed inherent bias of the program in final report

**Neural Network for Handwriting Recognition** *(December 2018)* github.com/hsharriman/QEA

- Implemented feedforward and convolutional neural networks to recognize hand-written digits using Python and Numpy
- Implemented dataset pre-processing, batches, epochs, incremental testing, saving and loading checkpoints

**Facial Recognition** *(March 2018)* github.com/hsharriman/facialrecognition

- Programmed two facial recognition algorithms: Eigenfaces and Bayesian Facial Recognition
- Tested on dataset of classmates faces' with 90% accuracy

**3D Graphics with OpenGL** *(April 2019)* github.com/Enmoren/SoftSys3DGraphics

- Used OpenGL, GLSL for interactive visualization of object files; experimented with material library texture files and OpenCV ArUco markers

**Robotic Obstacle Course** *(May 2018)*

- Programmed Roomba equipped with LIDAR to automatically complete obstacle course using RANSAC, gradient descent, linear algebra

**Robolympics** *(October 2018)*

- Programmed an inverted pendulum robot to stand upright as well as spin in place using transfer functions and feedback loops

**Heap Allocator** *(December 2019)*

- Implemented an explicit free list heap allocator using C, debugged with gdb

**Harmonia Park — Disney Imagineering Competition Semi-Finalist** *(Fall 2019)*

- Researched, designed a waterfront park in Boston to celebrate the city's history, delight visitors, and be a vision for the future. Illustrated a presentation of our proposal.

## CONTACT

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## TOOLS

Python / Numpy / Pytorch
Typescript / Javascript
C / C++ / gdb
Java / Arduino C
React / Redux
Git / Perforce
Ubuntu
HTML / CSS
Matlab
LaTeX
Tableau
Photoshop / Illustrator
InDesign

## INTERESTS

Autonomous vehicles
Machine learning
Computer graphics
Data visualization
Full stack engineering

## OTHER

Ex-professional ballerina with Dutch National Ballet, presently with Harvard Ballet Co.

Visiting student with Communications Design Department at Parsons the New School for Design, Spring, 2020

Student Researcher at Return Design Lab

2-time ACM SIGGRAPH conference Team Leader for Student Volunteer Program

Lead barista at Peet's Coffee

Freelance Illustrator and Graphic Designer

Olin Ultimate Frisbee Team

## REFERENCES

Upon request