

Hwei-Shin Harriman

EDUCATION

Olin College of Engineering, Needham, MA

Bachelor of Science in Computer Engineering, Class of 2021

EXPERIENCE

Full Stack Software Engineer – Tableau, a Salesforce Company (2022 to present)

- Builds, improves UI for customer-facing features within Tableau and Salesforce using Typescript, React, Redux, C#
- Writes APIs for use by Tableau and external developers using Java, Javascript
- Writes unit, integration tests to maintain full test coverage
- Writes, refactors backend code used to power Tableau using C++
- Collaborates with engineers, designers, PMs, managers, from external teams

Vehicle Software Engineering Intern – Tesla Motors (Fall 2020)

Created Plotly Dash web app to analyze CAN bus message trends, regressions on Tesla vehicles

- Dashboard highlighted cases where ECUs were sending messages incorrectly
- Created robust, parallelized work queue in Go, processes 2TB raw data/day
- Set up HDFS database in AWS S3, configured schema structure
- Designed SQL queries to efficiently pull data from AWS S3 using AWS Athena
- Set up data analysis pipeline to query, clean, analyze, and cache data on hourly basis using Airflow, Docker, Python
- Created UI assets to standardize design across Tesla Engineering Fleet dashboards
- Documented approach, architecture, design for ease of knowledge transfer; created Jupyter Notebook for new users to learn/explore query process, visualize query results

Software Engineer Intern – Tableau, a Salesforce Company (Summer 2020, Summer 2019)

Built UI for Tableau's AutoSave feature

- Created reusable and accessible React components that are used by multiple teams
- Created Redux actions, sagas, reducers, and requests to asynchronously fetch or discard drafts, and re-render relevant components
- Wrote integration test suite for AutoSave UI

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

- Created UI dialog where user can create or edit a Go To Sheet action
- Created endpoints and backend logic to fetch, make, discard actions

Computer Science Research Intern – Carnegie Mellon University (Summer 2021)

Contributed to open source project, Penrose, to generate diagrammatic high school geometry problems from a text prompt using program mutation

- Designed to be extensible to multiple math domains, easy to use for non-programmers
- Tools used: Typescript/React, Git, Penrose, LaTeX

PUBLICATIONS

Edgeworth: Authoring Diagrammatic Math Problems with Program Mutation

hsharriman.github.io/research/edgeworth.html

- 1st Place, Undergraduate Division, ACM SPLASH '21 Student Research Competition
- ACM Student Research Competition Grand Finalist

Clew3D: Automated Generation of O&M Instructions Using LIDAR-Equipped Smartphones

hsharriman.github.io/research/clew3d.html

- Extended abstract accepted to ACM ASSETS '21 conference for demo/poster track

PROJECTS

Neural Network for Handwriting Recognition – hsharriman.github.io/engr/mnist.html

- Wrote problem set and companion code for classmates to learn neural net fundamentals
- Wrote feedforward and convolutional neural networks to recognize hand-written digits using Python and Numpy, including pre-processing, batch and epoch capabilities

Robotic Obstacle Course – hsharriman.github.io/engr/ransac.html

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

Modernist-Style Poster Generator – hsharriman.github.io/engr/swiss.html

- Created website that generates posters in the style of Swiss Modernism using Javascript

LDA Research Buddy with Pytorch – hsharriman.github.io/engr/lda.html

- Created application that suggests and visualizes related topics for a given search term using topic modeling ML algorithms and web scrapers

CONTACT

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INTERESTS

ENGINEERING

Unique combinations of visual design and engineering

Improving STEM education

Interdisciplinary projects that aim to improve society

Human-centered design

OTHER

Professional freelance ballerina

Communications Design Student at Parsons the New School for Design, 2020

Freelance Graphic Designer

TOOLS

SOFTWARE

Python

Typescript / Javascript

Go

React / Redux

Docker / AWS / Airflow

Presto / SQL

Java

C / C++ / Arduino C

Git / Perforce

Linux Bash / Terminal

HTML / CSS

Matlab

LaTeX

Photoshop / Illustrator

INDUSTRY

Agile practices

Jira / TFS / Confluence

Code reviews

Version control

AWARDS

Grand Finalist, ACM Student Research Competition 2021

1st Place Undergraduate Division, ACM SPLASH Student Research Competition 2021

Semi-Finalist, Disney Imagineering 2020