James Song

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Education

University of Michigan Expected May 2026
B.S.E. Computer Science and Engineering, B.S. Mathematics GPA: 4.00/4.00

- CS Coursework: Machine Learning Theory • Intro ML • Data Structures and Algorithms • Computer Organization • Theory of Computation
- Mathematics: Real Analysis • Linear Algebra Theory • Multivariable Calculus • Probability • Discrete Mathematics • Differential Equations

Experience

Research Assistant, UM Transportation Institute – Ann Arbor, MI May 2023 – Present

- Designed a Point Cloud Registration algorithm to automate mesh morphing between target models and baseline models in MATLAB to increase Mesh Morphing's efficiency and accuracy in 3D Spinal Structures. (Video Presentation, Poster)
- Evaluated the geometric accuracy and mesh quality of transformed 3D Point Cloud Models in MATLAB to compare the different mesh morphing algorithms and optimize the final mesh model for Principal Component Analysis.

Software Engineer, Heliophysics Research Faculty Team – Ann Arbor, MI Jan 2023 – Nov 2023

- Developed a classification tree that uses a filtering system to identify celestial events, particularly solar bursts, by analyzing wavelength, frequency, and burst duration from .cdf and .fit data files in Python.
- Migrated the data collection and upload process to dropbox using dropbox API in Python.
- Led a 6-member subteam in developing a space data analysis program and a website to educate high school students on celestial events.

Strategist, University of Michigan Solar Car Team – Ann Arbor, MI Sept 2022 – Present

- Designed a real-time Cloud Coverage and Precipitation Radar with real-time weather data from weather APIs using Python Flask and ReactJS with a group of 4 strategists.
- Implemented a dynamic drive-by-sec simulator in C++ to support the development of race strategy software to train parameter control for race strategists.
- Analyzed race time frequencies of windspeed and yaw angle in weather files using MATLAB to better understand which specific yaw angle and windspeed ranges appear the longest during a race.

Projects

Note-Mesh Nov 2023 – Nov 2023

- Compiled Students' lecture notes into a Supernote using Computer Vision with fPDF and Llama2. Measured similarity in students' notes by k-means clustering in Skilearn. Hosted in Flask.

Skills

Programming Languages: C++, MATLAB, Python, JavaScript, Java, Dart
Tools: Pytorch, Llama2, Flask, DropboxAPI, Git