Sunwoo (Jennifer) Ha

https://sunwooha.github.io/

Email: sha@wustl.edu
Mobile: +1-352-226-5673

Education

- **Washington University in St. Louis** — St. Louis, MO
  PhD in Computer Science — *Aug. 2019 - Present*
  Advisor: Alvitta Ottley

- **New College of Florida** — Sarasota, FL
  Bachelor of Arts in Computer Science — *Aug. 2015 – May 2019*

Research Interests

My main research interests are in **Visual Analytics** and **Human-Computer Interaction**. In particular, I am interested in modeling the interaction of users to create AI collaborative systems. With this collaboration, I hope to assist users in data exploration and uncovering patterns.

Publications

Wayllace, C., **Ha, S.**, Han, Y., Hu, J., Monadjemi, S., Yeoh, W., Ottley, A., DRAGON-V: Detection and Recognition of Airplane Goals with Navigational Visualization, In *Proceedings of the 34th AAAI Conference on Artificial Intelligence*, Vol. 9. 13642 - 13643.

Presentations

- **Expectation vs. Reality: The Failed Evaluation of a Mixed-Initiative Visualization System**
  FailFest at VIS 2020 — *Oct. 2020*
- **DRAGON-V** — New York, NY
  AAAI-20 Poster and Demo Session — *Feb. 2020*
- **EMOTIVOMood: Identifying Depression by Voice Using Machine Learning** — Cambridge, MA
  IEEE MIT Undergraduate Research Technology Conference — *Nov. 2017*

Research Experience

- **Visual Data Analysis Group** — St. Louis, MO
  Graduate Research Assistant at Washington University in St. Louis — *Jan. 2020 - Present*
  - **Uncovering User Interest during Data Exploration via Unsupervised Clustering**: The emergence and increasing usage of large and dense datasets pose a challenge to both the user and visualization designers. As the visualization becomes more congested with information, it grows difficult for the user to make observations due to information overload. One solution that has garnered immense interest in recent years is to create intelligent systems that learn the user's interest and aid in data exploration. However, inferring high-level interest is still an open challenge. We develop a technique for uncovering potential data points of interest based on user interactions by learning natural groups in a given dataset via unsupervised clustering. Our technique's ability to discover user interest is validated with two crowd-sourced interaction datasets. We discuss and demonstrate how to incorporate our approach into an adaptive visual system that supports users during data exploration.

- **Home Automation Scheduler** — St. Louis, MO
  Undergraduate Research Assistant at Washington University in St. Louis — *Summer 2018*
  - **Project Summary**: Developed a user interface for Home Automation Scheduler (HAS) in D3, which is an increasingly popular JavaScript library for visualizing data. HAS is an ongoing project that schedules and optimizes the working times of connected smart devices in the home based on user constraints, electricity cost, and energy consumption. My contribution to this project is a dashboard that visualizes the optimal schedule produced by HAS. It gives users the option to edit the proposed optimal schedule for their devices as necessary and view the energy cost/consumption by the hour as the schedule changes.

- **EMOTIVOMood** — Worcester, MA
  Undergraduate Research Assistant at Worcester Polytechnic Institute — *Summer 2017*

- **Project Summary**: Past research has been able to accurately extract emotion from voice recordings and my group worked to expand those methods for depression diagnosis. We developed a framework for processing and analyzing voice recordings so that future research can work on improving the accuracy of our analysis algorithms. Our framework, EMOTIVOMood (EMU), streamlines the process for data collection and preprocessing while also providing an extensible framework for different analysis methods. It is capable of being run on a highly parallel compute cluster for maximum performance.

Teaching Experience

- **Introduction to Visualization** — St. Louis, MO
  Teaching Assistant - Washington University in St. Louis — *Sept. 2020 - Jan. 2021*
- **Object-Oriented Design** — Sarasota, FL
  Teaching Assistant - New College of Florida — *Fall 2018*
- **Functional Problem Solving with Scheme** — Sarasota, FL
  Teaching Assistant - New College of Florida — *Spring 2018*
- **Social and Ethical Issues in Computer Science** — Sarasota, FL
  Teaching Assistant - New College of Florida — *Fall 2017*

Awards

- **New College of Florida Presidential Scholarship** — Sarasota, FL
  Scholarship Value: $15,000 ($60,000 over four years) — *Aug 2015 - May 2019*

Skills

- **Programming Languages**: JavaScript, Python, Java, R, C, MATLAB, SQL