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Sheng Long

Research Interest

I am ***broadly*** interested in designing and evaluating user interfaces and information visualization. I am ***specifically*** interested in (i) taking interdisciplinary best practices toward experiment design and formally modeling human behavior when they interact with novel interfaces/information visualizations, and (ii) leverage machine learning, specifically transfer learning techniques, to automate the process of evaluating and enhancing user experiences when interacting with novel interfaces/information visualizations.

Education

2020 — 2026 **Ph.D., Computer Science, Northwestern University**
Advisor: Matthew Kay

2016 — 2020 **Bachelor of Science, Computer Science, Economics, William & Mary**
Summa Cum Laude. GPA: 3.86/4.0

Publications

Peer-reviewed Conference Paper

C3 2024 **To Cut or Not To Cut: A Systematic Exploration of Y-Axis Truncation** DOI
Sheng Long, Matthew Kay
CHI '24: Proceedings of the ACM SIGCHI Conference on Human Factors in Computing Systems

C2 2024 **Regulation of Algorithmic Collusion** DOI
Jason Hartline*, *Sheng Long**, Chenhao Zhang*
CSLAW '24: Proceedings of the Symposium on Computer Science and Law
* indicates mutual contribution

C1 2023 **Screening with Disadvantaged agents** DOI
Hedyeh Beyhaghi*, Modibo K. Camara*, Jason Hartline*, Aleck Johnsen*, *Sheng Long**
FORC '23: Proceedings of the 4th Symposium on Foundations of Responsible Computing
* indicates mutual contribution

Preprint

P1 2024 **Seeing Eye to AI? Applying Deep-Feature-Based Similarity Metrics to Information Visualization**
Sheng Long, Angelos Chatzimparmpas, Matthew Kay, Jessica Hullman

Peer-reviewed Workshop Paper

W2 2024 To appear **Old Wine in a New Bottle? Analysis of Visual Lineups with Signal Detection Theory** preprint
Sheng Long, Matthew Kay
BELIV '24: Evaluation and Beyond — Methodological Approaches for Visualization

W1 2024 To appear **Tasks and Telephones: Understanding Barriers to Inference due to Issues in Experiment Design** preprint
Abhraneel Sarma, *Sheng Long*, Michael Correll, Matthew Kay
BELIV '24: Evaluation and Beyond — Methodological Approaches for Visualization

Talks

2024 — **Old Wine in a New Bottle? Analysis of Visual Lineups with Signal Detection Theory**
To happen — BELIV '24: Evaluation and Beyond — Methodological Approaches for Visualization

2024 — **Regulation of Algorithmic Collusion**
MIW: Marketplace Innovation Workshop

2024 — **To Cut or Not To Cut: A Systematic Exploration of Y-Axis Truncation**
CHI '24: Proceedings of the ACM SIGCHI Conference on Human Factors in Computing Systems

2022 — **Screening of Budgeted Agents**
EC'22 Workshop: ACM Transactions on Economics and Computation; Algorithmic Contract Design: Present and Future Workshop

Teaching

As a teaching assistant at Northwestern University

2024 — **COMP_SCI 330 — Introduction to Human Computer Interaction**
Instructor: Matthew Kay
- ≈ 200 students

2024 — **COMP_SCI 333 — Interactive Information Visualization**
Instructor: Jessica Hullman
- ≈ 50 students

2021, 2022, 2023 — **COMP_SCI 212 — Mathematical Foundations of Computer Science**
Instructors: Shravas Rao (2021), Ben Golub (2022), Eric Evert (2023)
- ≈ 120 students

2022 — **COMP_SCI 369 — Online Markets**
Instructor: Jason Hartline
- ≈ 40 students

As a teaching assistant at William & Mary

2018, 2019, 2020 — **JAPN 201, 202 — Elementary Japanese**
Instructor: Aiko Kitamura
- ≈ 15 students

2019, 2020 — **ECON 475 — International Trade Theory**
Instructor: David H. Feldman
- ≈ 30 students

2019 — **GRAD 512 — Computing for the Humanities**
Instructor: James Deverick
- ≈ 15 students

2017 — **ECON 304 — Intermediate Macroeconomics**
Instructor: Nathaniel A. Throckmorton
- ≈ 30 students

Work Experience

2020 – Current **Graduate Research Assistant**
Northwestern University
- Led and collaborated on research across diverse topics, resulting in publications at top conferences
- Conducted Bayesian statistical analyses and developed a systematic framework for evaluating information visualization using `Python` and `R`
- Presented talks at conferences and workshops to researchers across diverse disciplines

Summer 2019 **Technology Analyst Intern**
Deutsche Bank
- Developed an online dashboard that analyzes 5, 000 + tweets containing "cashtags" using natural language processing and machine learning
- Examined the relationship between calculated sentiments and stock market closing prices
- Analyzed ag-grid code and assisted with client-side debugging using `JavaScript` and `AngularJS`

Summer 2017 **Public Policy and Strategic Planning Intern**
Cesar Chavez Public Charter School
- Researched and presented recommendations to the school board on communication-tracking software and platforms for promoting the organization

Honors & Awards

2020 – 2021 **Northwestern Computer Science Fellowship**

2016 – 2020 **Dean's List**

2019 ΦBK

2017 – 2019 **Carl A. Fehr Scholarship ($300)**
- William & Mary Music Department

2017 **James Monroe Scholar Summer Research Grant ($1, 000)**

Skills & Extracurriculars

- **Languages**: Chinese (native), Japanese (14 years; professional proficiency)
- **Programming Languages**: `R`, `Python`, `C/C++`, `JavaScript`, `HTML/CSS`, `Java`, `Clojure`
- **Libraries**: `tidyverse`, `pandas`, `NumPy`, `Matplotlib`, `torch`, `lightning`
- **Choral Performance**:
  - 2016 – 2017 William & Mary Women's Chorus
  - 2017 – 2020 William & Mary Choir
  - 2023 – Current Northwestern Camerata