Songwen Hu

shu343@gatech.edu | (413)-210-0295 | https://github.com/Delen0828

EDUCATION

Georgia Institute of Technology Atlanta, GA, USA
School of Interactive Computing (IC)
Ph.D. in Computer Science *Aug 2023 – Jun 2028 (Expected)*
Core Courses: Data Vis Principles, Inform Visualization, *Data & Visual Analytic, Human-Computer Interact*

Shanghai Jiao Tong University Shanghai, CN
University of Michigan - Shanghai Jiao Tong University Joint Institute (UM-SJTU JI)
B.Eng. in Electrical and Computer Engineering *Sept 2019 - Aug 2023*
Core Courses: *Calculus, Linear Algebra, Probabilistic Methods in Engineering, Discrete Mathematics, Programming & Elementary Data Structures, Data Structures & Algorithms, Intro to Data Science, Computer Organization, Signals & Systems, Circuits, Logic Design, Software Engineering, Intro to Artificial Intelligence, Machine Learning, etc.*

PUBLICATION

Hierarchical Conversational Preference Elicitation with Bandit Feedback
Jinhang Zuo, **Songwen Hu**, Shuai Li, Tong Yu, Handong Zhao, Carlee Joe-Wong
Accepted by *Conference on Information and Knowledge Management 2022* (CIKM 22') [arXiv]

Perceptual Benefits of Animation are Task-Dependent: Effects of Staging and Tracing in Dynamic Displays
Songwen Hu, Ouxun Jiang, Jeffrey Riedmiller, Cindy Xiong Bearfield
Accepted by *IEEE Vualization Conference 2024* (VIS 24') [arXiv]

RESEARCH EXPERIENCE

Perception Study of Animated Visualizations
Research project with Dolby Research; Advisor: Prof. Cindy Xiong Bearfield and Jeffrey Riedmiller from Dolby
Objective: *This research designed animated line charts with or without staging and tracing, and test participants' objective performance and subjective preference on them. We also try different encodings of speed to improve the performance of recalling tasks.*

- Design animated line charts with different design options and evaluate them objectively and subjectively.
- Test different encodings to improve the recalling accuracy.
- Contributed to a first-author paper in submission.

Personalized Visualization Recommendation System with Conversational Bandit *Mar 2022 - Aug 2023*
Undergraduate Research Assistant; Advisors: Prof. Shuai Li and Dr. Tong Yu from Adobe Research Team
Objective: *This research designed a personalized recommendation algorithm for dataset visualization by applying hierarchical structure on bandit algorithms to solve the problem of sparsity in the action space.*

- Applied Contextual Bandit and Neural Bandit algorithms to the item bundle recommendation problem.
- Adopted the cluster of sparse items as the dense meta feature in visualization recommendation.
- Contributed to a first-author paper in submission.

Theoretical Analysis of Hierarchical Upper Confidence Bound *Jul 2021 - Feb 2022*

Research project with CMU CS Ph.D.; Advisor: Prof. Shuai Li

Objective: *This research proposed a hierarchical structure for the traditional UCB (Upper Confidence Bound) method. Meanwhile, sufficient mathematical proofs and extensive experiments have verified the hierarchical UCB as an improved algorithm.*

- Designed a hierarchical Upper Confidence Bound algorithm for recommendation systems.
- Carried out mathematical analysis of regret bound and experiments in data from MovieLens & Yelp!.
- Contributed to a second-author paper accepted by *CIKM 2022*.

INTERNSHIP

Bosch China Shanghai, CN

Embedded Software Engineer *Jan 2022 - Jun 2022*

Project: Deep Learning-based Gesture Recognition Algorithm Development

- Developed gesture recognition algorithms for Human-Vehicle Interaction using DNN.
- Applied the attention network to the neural network for dynamic gesture classification.
- Achieved 90% accuracy for 16 static gestures and 9 dynamic gestures on webcam with 720p@30fps.

SKILL SET

- **Programming:** Python, C/C++, JavaScript, R, MATLAB, RISC-V Assembly, Verilog
- **Software:** Tableau, Qt Designer, Arduino IDE, Vivado, Origin Lab, Solidworks