CHEN CHENG

(510)977 3458 | ischen.cheng@gmail.com | chencheng.me

EDUCATIONAL BACKGROUND

ShanghaiTech University *Shanghai, China*
Bachelor of Engineering in Computer Science and Technology *Sep.2020-Jun.2024(expected)*
GPA: 3.87/4.0 | Rank: 6/248

University of California, Berkeley *Berkeley, CA*
Exchange Student in the Department of Electrical Engineering and Computer Sciences *Aug. 2023-Jan.2024*
GPA:4.0/4.0

RESEARCH INTERESTS

Interactive System, Visualization, Human-AI Interaction, Generative Agents

RESEARCH EXPERIENCE

Bridging the Comprehension Gap: A Deep Dive into LLM-Generated Code and the Design of CodeCognoscenti *Remote Independent Research*
Human-Centered Software Systems Lab | Advised by Prof. Tianyi Zhang | Purdue University
Jun.*2023-Present*

- Iteratively improved the mock-up and designed CodeCognoscenti, a VSCode extension that assists users in building an understanding of function-to-class level code generated by LLM, transitioning from low-level data to high-level code block semantics
- Conducted a formative study that included a literature review and semi-structured interviews with 15 developers, distilling the challenges they face when trying to understand function-to-class level code generated by LLM
- Designed a mock-up of a VSCode extension based on the GitHub Copilot Chat interface, equipped with a range of features to enhance code understanding
- Constructed a user flow based on a decision-making process gained from an observational study with 3 programmers on using LLM for code generation, comprehension, and debugging
- Designed a mock-up of an adaptive copilot for programming, utilizing interactive machine teaching and LLM self-reflection based on the pAIr programming model
- Proposed a humans and AI pair programming (pAIr programming) interaction model that emphasized the bidirectional understanding between both
- Proposed a conceptual prototype – A Sensemaking-Based Code Block Validation Tool by integrating chatbots, API documentation, and live programming

Searching for Optimal Heterogeneous Graph Neural Networks: A Comparative and Explainable Approach with VAC-HGNN *Shanghai, China*
ViSeer LAB | Advised by Prof. Quan Li | ShanghaiTech University *Nov.2022-Mar.2023*

- Designed and implemented a novel visual analytics system VAC-HGNN (Visual Analytics for Comparing HGNNs) composed of two primary views - the Design Space View and the Comparison View to accomplish the task of search direction determination and hypothesis validation
- Designed a pipeline to find the part of interest in the NAS dataset, enabling comprehensive understanding and comparative analysis of HGNNs at three distinct levels
- Proposed a nested unsupervised decision tree algorithm for HGNN design space partition
- Utilized OpenHGNN for real-time HGNN training, comparison, and hypothesis formation and validation
- Conducted three individual interviews to find user requirements when using heterogeneous neural networks

FMLens: Towards Better Scaffolding the Process of Fund Manager Selection in Actively Managed Equity Fund Investments *Shanghai, China*
ViSeer LAB | Advised by Prof. Quan Li | ShanghaiTech University *Oct.2022-Dec.2022*

- Implemented *FMLens*, a visual analytics system that helps scaffold the fund manager selection process
- Constructed regression equations for fund position simulation and compared three regression methods

ALens: An Adaptive Training System for Academic Abstract Writing *Shanghai, China*

ViSeer LAB | Advised by Prof. Quan Li | ShanghaiTech University *Jan.2022-Sep.2022*

- Developed most of the chapters of the paper, organized the ideas, and presented our work
- Built ALens with Vue as a responsive web-based application to demonstrate academic abstract writing
- Designed an abstract writing training process to facilitate main idea identification, draft writing, and writing style identification
- Conducted a formative study to understand the problems encountered by L2 junior researchers in the academic abstract writing process

PUBLICATIONS

- **Chen Cheng**, Junlei Zhu, Yufei Zhang, Ziming Wu, Quan Li **"Searching for Optimal Heterogeneous Graph Neural Networks: A Comparative and Explainable Approach with VAC-HGNN"**, Under Revision
- Longfei Chen, **Chen Cheng**, Xuanwu Yue, Jason Kamkwai Wong, Yun Tian, He Wang, Xiyuan Wang, Quan Li **"FMLens: Towards Better Scaffolding the Process of Fund Manager Selection in Actively Managed Equity Fund Investments"**, Submitted to *TVCG*
- **Chen Cheng**, Ziang Li, Zhenhui Peng, Quan Li **"ALens: An Adaptive Training System for Academic Abstract Writing"**, *HHME/CHCI 2023,* **Best Paper Honorable Mention Award**

HONORS & AWARDS

Undergraduate Special Scholarship | ShanghaiTech University	*Dec.2023*
Best Paper Honorable Mention Award | *HHME/CHCI 2023*	*Aug.2023*
Undergraduate Special Scholarship | ShanghaiTech University	*Dec.2022*
Data Visualization Competition 2nd Prize | ChinaVis2022	Jul.2022
Undergraduate Special Scholarship | ShanghaiTech University	Dec.2021

COURSEWORK EXPERIENCE

Black Asset Network Visual Analytic System | Course of Data Visualization, 2nd **Prize, ChinaVis2022 Data Visualization Competition**

- Used dimensionality reduction method to identify potential assets and develop a visual analytics pipeline for confirmation.

Chrome Dinosaur Game in RISC-V | Course of Computer Architecture I

- Used RISC-V to implement the Chrome Dinosaur Game on the Sipeed Longan Nano development board.

Linear Programming Solver | Course of Numerical Optimization

- Implemented a linear programming solver using Python via a two-phase approach to simplex algorithms.

Meta-Path Discovery Based on Temporal Equivariant Graph | Course of Artificial Intelligence

- Added temporal information to static graph representation by GRU and used DQN to discover meta-paths.

Hand Gesture Recognition using DD-Net & Knowledge Distillation | Course of Computer Vision

- Collected a hand gesture recognition dataset, built DD-Net from research and compressed the model with knowledge distillation

Linking Tweets with NYT Articles using ChatGPT & BERT | Course of Data Mining

- Mitigated data imbalance in tweet-news linkage by utilizing ChatGPT for text augmentation and used a Sentence-BERT-based model to link tweets and news

Robustness of In-Context Learning with Noisy Labels | Course of Designing, Visualizing and Understanding Deep Neural Networks

- Explored the resilience of Transformers in In-Context Learning (ICL) against noisy labels in training corpora and prompt demonstrations.

SERVICE

Peer Reviewing	ACM CHI 2023， ACM CSCW2023
Event Organizing	100 Enterprises on Campus

PROFESSIONAL SKILLS

Programming Languages	Javascript, HTML, CSS, Python, C/C++, Ruby, MATLAB, RISC-V
Tools and Frameworks	Vue, d3, Flask, Rails, PyTorch, Figma, DGL, Git