CHEN CHENG

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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*

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

Best Paper Honorable Mention Award | *HHME/CHCI 2023* *Aug.2023*

Undergraduate Special Scholarship | ShanghaiTech University *Dec.2022*

Undergraduate Special Scholarship | ShanghaiTech University *Dec.2021*

COURSEWORK EXPERIENCE

Black Asset Network Visual Analytic System | Course of Data Visualization, 2nd **Prize, ChinaVis 2022Data Visualization Competition**

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

Linear Programming Solver | Course of Numerical Optimization

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

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.

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

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