

CHEN CHENG

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EDUCATIONAL BACKGROUND

ShanghaiTech University

Bachelor of Engineering in Computer Science and Technology

GPA: 3.87/4.0 | Rank: 6/246

Shanghai, China

Sep.2020-Jun.2024(expected)

University of California, Berkeley

Exchange Student in the Department of Electrical Engineering and Computer Sciences

Berkeley, CA

Aug. 2023-Feb. 2023

RESEARCH INTERESTS

Visual Programming, HCI, Visualization, LLM, ML & AI

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**” , *Manuscript in preparation*
- 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*

HONORS & AWARDS

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 2022
Data 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 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 compress 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 use Sentence-BERT-based model to link tweet and news

SERVICE

Peer Reviewing

ACM CHI 2023, ACM CSCW2023

Event Organizing

100 Enterprises on Campus

PROFESSIONAL SKILLS

Programming Languages

Javascript, HTML, Python, C/C++, MATLAB, RISC-V

Tools and Frameworks

Vue, d3, Flask, PyTorch, DGL, Git