

Haichang Li

(Updated: Jan.2025)
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EDUCATION

Purdue University, West Lafayette, IN

Distinction, Jan.2025

Bachelor of Computer Information Technology, Minor in Communication

GPA: 3.96/4.0

Relevant Coursework: Grad - level Human Computer Interaction(A+), Grad - level Assistive Technology(A), Grad - level Data Analysis(A), Design Thinking(A), Applied Machine Learning(A), Applications in Data Science(A), System Programming(A), Object-Oriented Programming(A+), Database Programming(A), System Analysis and Design(A+)

PUBLICATIONS

[M.1] Haichang Li*, Collaborators, "Code2Fab: 3D Modeling Support for Blind and Low-Vision Programmers," (* indicates equal contribution, the writing has been completed and in prep for *UIST*; Authors' names are anonymized to avoid potential review process conflicts)

[M.2] Haichang Li, Zhongwen Guan, "Memore: A Hierarchical Context-Enhanced Intelligent Memory Management System for Elderly Users," (Submitted to *CHI 25' LBW Track*)

[C.1] Brian Ng, Samantha Sudhoff, Haichang Li, Joshua Kamphuis, Tim Nadolsky, Yingjie Chen, Kristen Yeon-Ji Yun, and Yung-Hsiang Lu, "Visualize Music Using Generative Arts," *2024 IEEE Conference on Artificial Intelligence (CAI)* (pp. 1516-1521). IEEE Computer Society. (Prior Survey for Mus2Vid)

[Note] A11Y Review and CommPilot are currently at different stages (Writing/Working). Please contact me for details.

EXPERIENCE

MEMO Glasses, MEMO.AI

HCI Researcher, Collaborated with MEMO

Hybrid, Globe

Oct 2024 – Present

Independently designed and conceptualized research on MEMO AI glasses. Led efforts in designing, developing, and integrating a visualization interface for Memore to enhance memory assistance and support daily caregiving.

DE4M Lab, CGT@Purdue University

Research Assistant, Supervised by Prof. Liang He

West Lafayette, IN

Oct 2023 – Present

Under the guidance of advisor, independently developed a full-stack prototype, completed the majority of manuscript writing for Code2Fab. Designed tools and conducted qualitative analysis for a11y review.

Shine Resume, SOUNDING.AI

Founding Member, Initial start-up team of 5 people

Changsha, CN

Apr 2023 – Aug 2023

Fueled company growth by establishing the AI team and forging strategic partnerships with multiple companies. Oversaw the design and development of AI-driven features, supporting the team in securing 10M+ CNY funding for ShineResume.

AIM Group, Music&ECE@Purdue University

Research Leader, Supervised by IEEE Fellow Prof. Yung-hsiang Lu & Prof. Yeon-Ji Yun

West Lafayette, IN

Feb 2023 – Nov 2024

Led a diverse and global team, managing task delegation, project planning, and timelines. Directed onboarding, designed assignments, and promoted effective communication. Spearheaded iterative system design and user studies for Mus2Vid.

PAST WORKS

Memore | Memory Assistance, LLM Agent, Wearable Technology

Research Lead (Collaboration with MEMO.AI)

Hybrid, Globe

Oct 2024 – Jan 2025

- Designed and developed Memore, a hierarchical context-enhanced memory management system to assist elderly users in capturing, organizing, and retrieving memories with the help of LLM-powered multi-agent systems.
- Recognized that memory decline in elderly users is a multi-dimensional issue, affecting not only memory loss but also emotional well-being and social interactions. Addressed this by integrating hierarchical context enhancement and user control, enabling intelligent support while respecting user autonomy and privacy.
- Introduced a recurrent memory capture mechanism inspired by LSTM networks, enabling the system to process memories recursively and optimize memory organization without manual intervention.
- Developed a lightweight glasses device to seamlessly integrate memory capture into daily life, along with mobile/web UI to provide control and multi-dimensional review, ensuring minimal disruption and maximum usability for elders.

A11Y (Accessibility) Review | Accessibility, Review, Dataset

West Lafayette, IN

Undergraduate Research Assistant

May 2024 – Present

Advisor: Faculty related to the accessibility (names anonymized to avoid potential review process conflicts)

- Conducted an extensive review of accessibility artifacts in top-tier conferences (CHI, ASSETS, UIST) over the past 15 years to identify design and evaluation patterns within accessibility.
- Compiled a dataset outlining trends and research methodologies, establishing a MySQL database and dynamic visualization interface for in-depth exploration and analysis of accessibility artifacts.
- Developed automated scripts and custom annotation tools for coding relevant papers, manually reviewing and coding over 100 papers to gain insights into accessibility-focused designs.

Code2Fab | LLM Interface, User Study, Accessibility

West Lafayette, IN

Undergraduate Research Assistant

Oct 2023 – Present

Advisor: Faculty related to the accessibility and AI (names anonymized to avoid potential review process conflicts)

- Developed a programming-based LLM-assisted 3D modeling system to support BLV users in independently understanding, creating, and validating 3D models, expanding their access to 3D printing technology.
- Integrated BLV users' mental models with their iterative design process to ensure model iterations align with ideal outcomes, enabling BLV users to achieve semantic-level focus comparable to sighted users.
- Investigated accessible web design, utilizing multimodal feedback to facilitate natural BLV user-system interactions, introducing intent-based AI into workflows with minimal disruption.

Shine Resume | LLM, Human-AI Collaboration, Multi-Agents System

Shenzhen & Changsha, CN

Founding Member, Shine Resume, Initial team of 5 people

Apr 2023 – Aug 2023

At that time belonged to: Tanyu.mobi, Sounding.ai was officially registered after my leaving

- Conceptualized and launched Shine Resume, an AIGC and LLM-powered tool addressing employment gaps for undervalued NG in China's frozen post-pandemic market, attracting 10M CNY funding and initial adoption.
- Designed a multi-agent LLM system that dynamically guided users in uncertain scenarios, taking initiative to suggest tailored career paths based on user data mappings and transferring control back to users for decision-making.
- Leveraged AI to parse key information from resumes and job descriptions, creating a resume-industry-role-preference mapping and vector database for recommendation and matching, aligning recruitment with job-seeker intent.
- Implemented rigorous ethical safeguards, ensuring AI agents avoided generating unethical or illegal outputs by designing preventative measures to align with compliance standards and laws.

Mus2Vid | Multi-modal LLM, Music Visualization, User Study

West Lafayette, IN

Contributor for Formative Study Project, Leader for System Project

Mar 2023 – Nov 2024

Advisor: Prof. Yung-hsiang Lu, IEEE Fellow, ECE@Purdue; Prof. Yeon-Ji Yun, Music@Purdue

- Developed a hierarchical workflow leveraging MusicLLM for feature analysis and fine-tuned LLaMA-based multi-modal alignments, simulating human cognitive models of music appreciation to guide visual generation.
- Introduced movie storytelling frameworks to improve coherence and user acceptance of machine-generated synesthetic videos, aligning outputs with human cognitive preferences.
- Conducted user studies validating abstract visual preferences and employed cross-validation methods to track user choices under uncertain conditions, revealing connections between music and visuals.

PROJECTS

ICDGPT: ICD Prediction based on Multi-agents LLM System

Medical LLM for ICD-9 Coding

ICDGPT employs an autoregressive recurrent structure to process ultra-long texts. It integrates an updatable memory mechanism and a multi-agent debate system (e.g., insurance vs. medical agents) to reduce hallucinations and enhance factual accuracy. The system helps GPT-4 achieve a 15% improvement in F1 and accuracy on the same benchmark.

Plug-And-Play Social Robot based on LLM

Grad Course: Assistive Technology

Developed a modular, multimodal social robot designed to support individuals with depression by processing diverse inputs like voice, facial expressions, and text. The system adapts to user needs with its plug-and-play design and also incorporates LLM to enhance decision-making, ensuring effective support even with expressive limitations.

AWARDS AND SKILLS

Awards: Distinction@Purdue, Dean's List and Honor Semester in all semesters, SURF 22', DUIRI 24', Multi semesters' RAship from NSF IIS-2326198, Tencent PM Advanced Camp 24'(Lighthouse Project@Tencent)

Skills: ML(TF/PyTorch), Data(Pandas/Numpy), PM(e.g. Figma/Visio), Web(Flask/Vue), User Study(e.g. Survey/Interview), Quantitative(CodeBook) and Qualitative analysis, Literature review, Academic Writing