Qiushi (Anya) Liang

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OBJECTIVES

Anya is a multifaceted professional, having served as a software engineer and tech enthusiast now and in the past. Her primary research areas encompass digital accessibility, human-machine collaboration, and computer-supported cooperative work (CSCW).

EDUCATION

Northeastern University - Boston, MA **09/2024–now**
- Doctor of Philosophy in Computer Science
- *Advised by: Dr. Maitraye Das* GPA: 4.00/4.00

Northeastern University - Boston, MA **09/2021–12/2023**
- Master of Science in Computer Science GPA: 3.86/4.00
- Courses: *Human Computer Interaction, Foundations of Artificial Intelligence*

National Taiwan University of Science and Technology - Taipei, Taiwan **02/2018–07/2018**
- Exchange program hosted through the Computer Science and Information Engineering Department

Central China Normal University - Wuhan, China **09/2015–06/2020**
- Bachelor of Science in Software Engineering

ACADEMIC RESEARCH

Technology, Equity, and Accessibility (TEA) Lab - Boston, MA **01/2023-Present**
Project Title: Exploring Neurodivergent Individuals' Technology-mediated Personal and Professional Work
Advisor: Maitraye Das
- Investigated how neurodivergent individuals leverage technology for relationship maintenance, with a primary focus on close friendships and romantic partnerships.
- Collected over 20 autoethnographic journal entries from self-reflection and field notes; mentored two fellow autoethnographers in gathering an additional over 5 entries.
- Conducted 4 semi-structured interviews with 2 auto-ethnographers and 2 neurodivergent individuals experienced in maintaining long-distance close relationships.
- Performed open coding on journal entries, field notes, and semi-structured interview transcripts; synthesized aggregated data through thematic analysis.

Civic A.I. Lab, Northeastern University - Boston, MA **09/2023–01/2024**
Master's Thesis: Data Annotation using AI-Captioning for Pop Culture and Local Knowledge
Advisor: *Saiph Savage*
- Investigated data annotation efficiency of schema theory-informed multi-turn questioning in generative AI systems with a focus on pop culture and local knowledge, determining its logistical feasibility, accuracy, and impact on social media content.
- Conducted literature review of scholarly articles re schema theory, generative AI systems, and digital accessibility.
- Applied design thinking principles to identify pain points and challenges in the context of AI-driven data annotation. Created wireframes, user journeys, and prototypes using tools such as Figma to architect the experiment design.
- Developed and refine algorithms that facilitate human and AI interaction, namely ChatGPT APIs.

- Compared the effectiveness of the Schema Theory-informed system against a standard approach especially in social media content, using statistical analysis of accuracy, richness, and user engagement of such data.
- Expected to observe an increase in the accuracy and cultural relevance of image captions for social media content, providing a model for integrating human cultural and local insights into AI systems, especially as a way to improve digital accessibility for culturally minor groups who have cognitive impairments.

Central China Normal University **- Wuhan, China** **2019 - 2020**

Bachelor's Thesis: Automatic Recognition of Harmful Short Texts in Social Media

Advisor: Xianjun Shen

- Studied the application of natural language processing in countering hate speech on Chinese social media. Developed and trained a two-layer Graph Convolutional Network model using TensorFlow to detect and categorize hostile text corpus.
- Integrated prominent open-source Chinese sentiment lexicons to enhance the accuracy of text preprocessing.
- Implemented Pointwise Mutual Information for graph construction, which improved recognition accuracy of harmful texts compared to traditional cosine similarity by 33.7%.
- Achieved an overall accuracy improvement of 24.2% over traditional lexicon-based methods.

EMPLOYMENTS

Shopee Pte. Ltd. - Shenzhen, China **06/2020-07/2021**

Full-Stack Developer

Technologies: Spring MVC, JavaScript, MySQL, Redis, Kafka, Spring Security, JUnit, Agile Dev

- Developed a web-based recommender module for Shopee, a Singapore-based e-commerce platform in Asia, to provide purchase recommendation at scale over its 72 million user base.
- Employed the Spring MVC framework to construct the front end of the application. Developed React.js code to implement key UI features, including user interaction, the product details page, and personalization preferences.
- Implemented a high-performance storage system using MySQL, Redis, and Kafka, achieving an average response rate of 10,000 requests per second. Implemented user authentication using Spring Security, and JUnit for unit testing.
- Launched the module internally with Shopee within 6 months. Passed all validation and compliance reviews.

Beijing Asia Satellite Communication Technology Co., Ltd - Beijing, China **03/2019–05/2020**

Backend Development Intern

Technologies: Python, Flask, SQLite, Jenkins, CI/CD, Microservices, Docker, Kubernetes

- Built a task management platform for the development team using Python, Flask, and SQLite, which enables engineers to create user issues, plan sprints, and distribute tasks among teams.
- Implemented Jenkins and Jenkins server as CI/CD tools to automate build, test, deployment, and issue notifications.
- Employed microservices architecture and modularized the app to enhance scalability and overall system throughput.
- Dockerized the application and deployed to Kubernetes cluster for production use, exceeding a 99.9% uptime.

Parallel Pipes - Remote, United States **02/2023–08/2023**

Full-Stack Development Intern

Technologies: React.js, MongoDB, AWS RDS, AWS CloudWatch

Refined frontend pages for CAD model showing, allowing better interactions, refactoring data storage from relational database to non-relational database and enhancing deployment

- Utilized React to redesign the model showing page, improving user interactions for viewing products and modifying simulation conditions for products
- Used MongoDB, storing and managing additional data related to the CAD models and materials
- Leveraged AWS RDS for deployment, and used AWS CloudWatch for monitoring and troubleshooting

HOBBY PROJECT

Husky Eats: Enhancing the NEU Dining Experience - Northeastern University **2022–2023**

Course Project: Human Computer Interaction, Northeastern University.

Instructor: Caglar Yildirim

- Revamped Northeastern University's dining app and reinvented it as "Husky Eats", a streamlined and user-friendly mobile app that addresses user pain points ranging from poor navigation to a frustrating ordering process.
- Conducted user interviews and focus groups to identify user pain points, latent needs, and gaps in service.
- Assessed the existing app for contextual insights and documented users' engagement and sentiments about the app.
- Conducted cognitive walkthroughs and heuristic evaluations, leading to the creation of wireframes, mockups, and prototypes in Figma and Axure. Improved usability score by 69% compared with initial assessment results.

Bestie: a Personal Blog - Somewhere in the Universe **[DATES]**

Developer and Author

Technologies: Java, HTML, CSS, JavaScript, RESTful APIs

- Developed a light-weight responsive and visually appealing web blog system using HTML, CSS, and JavaScript.
- Ensured cross-browser compatibility and optimized the performance of web blogs for seamless user experiences.
- Completed multiple revisions to add new features such as Weibo and WeChat integration, multimedia content streaming, traffic and visitor analytics, and Single Sign-on (SSO) for the user comments section.
- Refactored the blog by adapting it into a headless CMS system for portability and efficient content creation, allowing API queries of hosted content and better collaboration with content creators and backend developers.

SKILLS

Programming Languages: Java, JavaScript, Python, Bash, C, C++, Golang, C#
Database: MySQL, MongoDB, Redis, SQL Server, Firebase, SQLite
Web Development: Flask, Spring, ReactJS, NodeJS, HTML, CSS
Utilities: Git, Docker, Kubernetes, AWS EC2, AWS RDS, Ubuntu, Nginx
UI/UX Design Tools: Figma, Axure, Framer, Adobe Photoshop, Illustrator, InDesign