Ti-Chung Cheng

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EDUCATION

Doctor of Philosophy in Computer Science, University of Illinois Urbana-Champaign — Expected May 2026
Thesis Proposal: "Quadratic Surveys: Empirical Research on Using Quadratic Voting Mechanism as a Preference Elicitation Tool" — GPA: 4.00/4.00
Master of Science in Computer Science, University of Illinois at Urbana-Champaign — July 2020
Bachelor of Science in Computer Science (Minor in Business Economics), The Chinese University of Hong Kong — December 2017

TECHNICAL SKILLS

[Code & Frameworks] Python, TypeScript, JavaScript (Express.js, Angular.js, React.js, Nest.js, D3.js), Java, SQL, MongoDB, Neo4j, HTML, CSS
[ML Tools] Prompt Engineering, Natural Language Processing, Large-Language Model, LangChain, Guidance, Locality-Sensitive Hashing, OpenCV
[Libraries and Others] ChromaDB, CosmosDB, Photoshop, Figma, Linux, Latex, Agile (Jira), Salesforce

SELECTED WORK EXPERIENCE

Graduate Teaching Assistant, University of Illinois at Urbana-Champaign — Champaign, IL | Aug 2018 - Present

- Led CS411 Introduction to Databases (7 terms, 450+ student/term); mentored TAs, design projects, assignments & exams, and built autograder.
- Led and designed assignments for CS242 Programming studio, a course teaching best coding practices (3 terms, 200+ student/term).
- Lead and revamp CS598 Data Mining Capstone, offering support and redesign capstone projects for MOOC classes through Coursera.

Research Intern, Microsoft Research, Special Projects — Redmond, WA | Feb 2024 - May 2024

- Investigated empirically on Large Language Model's influence to high-stakes decision-making events through misinformation.
- Conducted time series, linguistic, and qualitative analyses of 150K+ articles to substantiate claims about generative propaganda's impact.

Research Intern, Microsoft Research, Software Analysis & Intelligence (SAINTES) Group — Redmond, WA | May 2023 - Aug 2023

- Designed and built a multi-agent LLM system to surface tacit knowledge across disconnected teams using DevOps data; published as Tech Report.
- Implemented the system using OpenAI API, Guidance, FLAML, and MySQL; introduced iterative prompt priming to guide LLM behavior.

Software Engineer Intern, Salesforce, Lightning Component Services Team — San Francisco, CA & Remote | Summer 2019 & 2020

- Built a VS Code plugin in TypeScript reducing XML dev time by **50%** for Salesforce engineers; contributed to Red Hat's XML Open Source Plugin.
- Built pipelines and designed 3 dashboards for front-end cache monitoring using Java, Grafana, and Splunk to visualize daily logs on a billion scale.

Machine Learning Research Intern, KKBOX, Machine Learning Team — Taipei, Taiwan | May 2018 - Aug 2018

- Researched and implemented a natural language processing pipeline for mandarin name-entity recognition with 90%+ accuracy.
- Designed and built a pattern-based relation extraction pipeline for cross-language music content using 3B+ music data.

HIGHLIGHTED PROJECTS

Co-Founder and Tech Lead, Here@Illinois (Live Link)

- Launched a high-scale attendance platform used by 1,000+ students and 120+ instructors across campus.
- Architected a distributed system with horizontal and vertical scaling, integrating privacy-first design and data security from the ground up.
- Recruited and led a 6-person full-stack team (MongoDB, Node.js, React); deployed via AWS & GCP, drove agile delivery and user adoption.

Researcher and Developer, Quadratic Survey Toolkit

- Built a full-stack survey system (Nest.js, React, MongoDB) for preference elicitation, validated in 3 peer-reviewed studies.
- Design and executed 3 user studies demonstrating the effectiveness of Quadratic Voting and its UX design.

Research Assistant, Distributed Locality-Sensitive Hashing Similiarity Search

- Conducted research on distributed hash-based nearest-neighbor search algorithms with a publication at SIGMOD.
- Built a 15% more time-efficient and scalable Image Retrieval system compared to OpenCV FLANN Library.

SELECTED PUBLICATIONS

[Conference Paper] Organize, Then Vote: Exploring Cognitive Load in Quadratic Survey Interfaces
Ti-Chung Cheng, Yutong Zhang*, Yi-Hung Chou*, Vinay Koshy, Tiffany Wenting Li, Karrie Karahalios, Hari Sundaram, *CHI 2025*

[Conference Paper] "We Just Use What They Give Us": Understanding Passenger User Perspectives in Smart Homes
Vinay Koshy, Joon Sung Park, **Ti-Chung Cheng**, Karrie Karahalios, *Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems, CHI 2021.*

[Technical Report] GEMS: Generative Expert Metric System through Iterative Prompt Priming
Ti-Chung Cheng, Carmen Badea, Christian Bird, Thomas Zimmermann, Robert DeLine, Nicole Forsgren, Denae Ford, *Microsoft Research*

SELECTED AWARDS

UIUC Computer Science Department Outstanding Teaching Assistant — 2020, 2024
UIUC CS PhD Fellowship — 2023, 2024
ACM CHI 2021 Best Paper Honorable Mention Award (top 5%) — 2021