

Ti-Chung Cheng

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EDUCATION

- Ph.D. Candidate in Computer Science, University of Illinois at Urbana-Champaign** 2020 - Present
Co-advised by Prof. Karrie Karahalios & Prof. Hari Sundaram
- M.Sc. Computer Science, University of Illinois at Urbana-Champaign** 2018 - 2020
Advised by Prof. Karrie Karahalios, Prof. Hari Sundaram, and Prof. Aditya Parameswaran
Thesis: "Comparing Quadratic Voting and Likert Surveys"
- B.Sc. Computer Science with Business Economics Minor, The Chinese University of Hong Kong** 2013 - 2017
Final Year Project advised by: Prof. James Cheng, Academic Advisor: Prof. John Lui
Final Year Project: "Efficient nearest-neighbor search in Distributed Manner"

RESEARCH INTEREST

- [R1] Utilize computational powers and interaction design to better elicit accurate individual preferences, i.e., using mechanism design and game theory.
- [R2] Design and build end-user data analytic and visualization systems.
- [R3] Design and build ML-driven systems that allow individuals and teams make better decisions.

PUBLICATIONS

» Full Papers

[C4] "I can show what I really like.": Eliciting Preferences via Quadratic Voting

Ti-Chung Cheng*, Tiffany Wenting Li*, Yi-Hung Chou, Karrie Karahalios, Hari Sundaram, *Proceedings of the 2021 ACM Conference on Computer Supported Cooperative Work and Social Computing, CSCW 2021*

[C3] "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*. Best Paper Honorable Mention (Top 5%).

[C2] Understanding Data Analysis Workflows on Spreadsheets: Roadblocks and Opportunities.

Pingjing Yang, Ti-Chung Cheng*, Sajjadur Rahman*, Mangesh Bendre, Karrie Karahalios, Aditya Parameswaran. *Workshop on Human-In-the-Loop Data Analytics (HILDA) at SIGMOD, June 2020, HILDA 2020*

[C1] A General and Efficient Querying Method for Learning to Hash.

Jinfeng Li, Xiao Yan, Jian Zhang, An Xu, James Cheng, Jie Liu, Kelvin K. W. Ng, Ti-Chung Cheng. *SIGMOD '18: ACM SIGMOD Int'l Conf. on Mgmt. of Data, Houston, USA, 2018*.

» Posters

[P1] Quadratic Voting better elicits user preferences compared to Likert Surveys [In Mandarin]

Ti-Chung Cheng, Tiffany Wenting Li, Yi-Hung Chou, Karrie Karahalios, Hari Sundaram, *Proceedings of the 2021 Taiwan CHI Conference, TAICHI 2021*

» Work-In-Progress

[In preparation] Understanding How People Modify Spreadsheets

Ti-Chung Cheng, Tana Wattanawaroon, Aditya Parameswaran, Karrie Karahalios.

RESEARCH AND WORK EXPERIENCE

- Software Engineer Intern, Salesforce** Summer 2020
Mentored by Richa Gupta, Lightning Component Services Team
Develop VSCode Plugin for Salesforce developers to reduce XML development time by 2x
Contributed to Redhat XML Open Source Plugin that has 794K installs
- Software Engineer Intern, Salesforce** Summer 2019
Mentored by Anas Jadallah, Lightning Component Services Team
Built pipeline and designed 3 dashboards for daily logs on a billion scale for performance metrics
Optimized dashboard queries by 10x with better comprehensibility
- Graduate Research Assistant, University of Illinois at Urbana-Champaign** Jan 2019 - May 2019
- Machine Learning Research Intern, KKBOX** Summer 2018
Mentored by Dr. Yian Chen, Machine Learning Team

*Equal Contribution

Researched and implemented ML pipeline for NER with 90%+ accuracy
 Built pattern-based relation extraction pipeline for cross-language music content using 3B+ music data
Undergraduate Research Assistant, The Chinese University of Hong Kong Dec 2015 - Dec 2017
 Mentored by Prof. James Cheng and Dr. JinFeng Li
 Conducted research on distributed hash-based nearest-neighbor search algorithms with a publication at SIGMOD
 Built 15% more time efficient and scalable Image Retrieval system compared to OpenCV FLANN Library
Summer Research Intern, National Center for High-Performance Computing Summer 2015
 Mentored by Dr. Hsing-Yen Ann
 Designed and implemented database pipeline to retrieve and analyzes malicious fast-flux domains
 Contributed to *Tsai et al. Using BDTS to detect IP changes of malicious domains over time. TANET 2018.*

TEACHING EXPERIENCE

CS 411 Database System, Lead Teaching Assistant, UIUC SP 2021, FA 2021, SP 2022
 CS 411 Database System, Teaching Assistant, UIUC FA 2020
 CS 242 Programming Studio, Head Teaching Assistant, UIUC FA 2019, SP 2020
 CS 242 Programming Studio, Teaching Assistant, UIUC FA 2018
 CSCI 2040 Introduction to Python, Course Assistant, CUHK FA 2017

SELECTED SOFTWARE DELIVERABLE

[Data Visualization] Visualizing the Impact of SARS-CoV-2 Intervention Strategies (Link)

This project aims to understanding how and whether interventions from public decision impact the spread of diseases.

[Web] The Official Website for CUHK Taiwanese Student Association (Link)

The web platform serves as the gateway to assist incoming students and share Taiwanese Culture

Responsible for product management, database design and back-end development with a team of 10

Implemented 20+ API, responsible for maintenance and database design. Currently having 1500+ visitors per year.

Built with MongoDB, Express.js, React.js

[Chatbot] Rachel: friends and family health-centered chatbot

A Hackathon Project. Features a chatbot that integrates calendars with health conditions of families.

Designed the system architecture and built 30+ back-end APIs for the chatbot.

Built with MongoDB, Express.js, Luis.ai

AWARDS

ACM CHI 2021 Student Volunteer Award 2021
 ACM CHI 2021 Best Paper Honorable Mention Award (top 5%) 2021
 UIUC Computer Science Department Outstanding Teaching Assistant SP20 (five awardee per semester) 2020
 The Chinese University of Hong Kong Morningside College Academic Scholarship 2016-17 2017
 HKSAR Government Reaching Out Award and Scholarship 2013-14 2014

SERVICE

Student Volunteer, CSCW 2021 Oct 2021
 Student Volunteer, CHI 2021 May 2021
 Columnist, Mandarin Daily News Jan 2020 - Dec 2021
 Writes monthly columns on computer science, technology and HCI for elementary students.
 The paper have over 100K subscribers and is used elementary teachers in Taiwan.
 MUSE Mentor, University of Illinois at Urbana-Champaign FALL 2019
 Rifleman (Private), The Republic of China Army Jan 2018 - Apr 2018
 Initiator and coordinator, The Circle Group Oct 2016 - Dec 2017
 Established The Circle Group to connect CS and non-CS students academically through sharing
 Lead a team of 20+ students inviting 30+ speakers from various disciplines that served over 1000+ audiences .
 Created a guide for incoming freshmen with over 10K views and hosted 21 workshops including 13 technical lectures.
 Information Officer, CUHK, Taiwanese Student Association Oct 2015 - Oct 2016
 Project Coordinator and Volunteer, CUHK, Morningside College Oct 2013 - May 2014

STUDENTS MENTORED

Yutong Zhang (*UIUC BS CS '23*)

2021-Present

Patrick Xu (*UIUC BS CS '24*)

2021-Present

Yi-Hung Chou (*CUHK BS CS '21; Now Graduate Student at UCI*)

2019-2021

INVITED TALKS

[T1] Guest Lecture: Nudges in Computer Science

Match 30th, 2022

Ti-Chung Cheng, ECON 490 Behavioral Economics, University of Illinois at Urbana-Champaign