

# Ti-Chung Cheng

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## EDUCATION

- Ph.D. 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] Design and build computational systems that allow individuals and teams make better decisions, i.e., using mechanism design and game theory.
- [R2] Design and build end-user data analytic and visualization systems.

## 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 Management 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  
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

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\*Equal Contribution

**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 Systems, Lead Teaching Assistant, UIUC SP 2021  
 CS 411 Database Systems, 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, CHI 2021 May 2021  
 Columnist, Mandarin Daily News Jan 2020 - Present  
 Writes monthly column 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  
 Volunteered in Nepal to understand, evaluate needs of local people ,and provide solutions.  
 Wrote and received 37,500 HKD volunteering grant from the university.

**STUDENTS MENTORED**

Yutong Zhang (UIUC BS CS '23) 2021-Present  
 Yi-Hung Chou (CUHK BS CS '21; Now Graduate Student at UCI) 2019-2021