YUAN "CHARLES" CUI

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digital-flaneur.github.io

EDUCATION

Northwestern University — Evanston, IL
Ph.D., Computer Science — 2020 - Expected 2026
Advisor: Matthew Kay
Master's, Computer Science — 2023
Advisor: Matthew Kay

Oberlin College — Oberlin, OH
B.A., Mathematics, Computer Science — 2016 - 2020

Budapest Semesters in Mathematics — Budapest, Hungary
Study Abroad — 2019

PUBLICATIONS

Promises and Pitfalls: Using Large Language Models to Generate Visualization Items. Yuan Cui, Lily W. Ge, Yiren Ding, Lane Harrison, Fumeng Yang, Matthew Kay. *IEEE VIS* 2024. (Acceptance Rate: 22%)

Odds and Insights: Decision Quality in Exploratory Data Analysis Under Uncertainty. Abhraneel Sarma, Xiaoying Pu, Yuan Cui, Eli T Brown, Michael Correll, Matthew Kay. *ACM CHI* 2024. (Best Paper Honorable Mention | Top 5%)

Adaptive Assessment of Visualization Literacy. Yuan Cui, Lily W. Ge, Yiren Ding, Fumeng Yang, Lane Harrison, Matthew Kay. *IEEE VIS* 2023. (Acceptance Rate: 25%)

CALVI: Critical Thinking Assessment for Literacy in Visualizations. Lily W. Ge, Yuan Cui, Matthew Kay. *ACM CHI* 2023. (Best Paper Honorable Mention | Top 5%)

Can an Algorithm be My Healthcare Proxy?. Duncan McElfresh, Samuel Dooley, Yuan Cui, Kendra Griesman, Weiqin Wang, Tyler Will, Neil Sehgal, and John Dickerson. *Explainable AI in Healthcare and Medicine* 2021.

PROFESSIONAL EXPERIENCE

Max Planck Institute for Demographic Research — Rostock, Germany
Social Data Science Researcher — 06/2024 - 08/2024
Built statistical models to estimate age-specific mortality at the national level in data-scarce contexts.

RegLab @ Stanford Law School — Stanford, CA
Graduate Fellow — 06/2023 - 08/2023
Designed statistical sampling techniques to estimate racial disparity when data is scarce, and established performance guarantees with mathematical proofs. Built simulations and estimated health disparity in a dataset containing ~7M Americans' healthcare records.

Carnegie Mellon University & Data Science for Social Good Foundation — Pittsburgh, PA
Data Science Fellow — 05/2022 - 08/2022
Built a machine learning system to improve the routing of the 988 Suicide & Crisis Lifeline which serves 2,000,000+ callers per year. Obtained preliminary results that showed the new system could help ~20,000 additional callers each year.

University of Chicago Consortium on School Research Hyde Park, IL
Research Intern 03/2022 - 05/2022
Conducted clustering analysis on Chicago Public Schools data to predict students' graduation rate.

HomeRiser, Inc Remote
Co-founder, Head of Data Science 01/2021 - 10/2021
Co-founded a real estate technology start-up to provide more flexible and affordable ways to finance people's home ownership. Developed a financial model in Python that simulated cash flow and generated detailed profit and loss statements.

University of Maryland | REU - Combinatorics and Algorithms for Real Problems College Park, MD
Undergraduate Researcher 05/2019 - 08/2019
Developed a machine learning model for advance healthcare directives. Deployed active learning algorithms to dynamically select survey questions based on patients' previous responses. Built a website to collect data. Coauthored a paper, which was accepted to the *Explainable AI in Healthcare and Medicine*.

Oberlin College Computer Science Department Oberlin, OH
Undergraduate Researcher 06/2018 - 08/2018
Analyzed a repeated pricing game between a buyer and a seller in the presence of privacy and the absence of commitment power. Conducted numerical experiments and solved for equilibrium in the game. Formalized results about the effect of privacy in our repeated sales setting.

PRESENTATIONS, WORKSHOPS, TUTORIALS

Presentations

IEEE VIS. *"Promises and Pitfalls: Using Large Language Models to Generate Visualization Items."* Oct 2024, Tampa, FL.

Max Planck Institute for Demographic Research. *"A Fast and Furious Introduction to Computer Science."* Jul 2024, Rostock, Germany.

IEEE VIS. *"Adaptive Assessment of Visualization Literacy."* Oct 2023, Melbourne, Australia.

Data for Good. *"Improving the 988 Suicide & Crisis Lifeline's Service Through Better Call Routing."* Sept 2022, Seattle, WA. Joint with Irene Tang.

Tutorials

Max Planck Institute for Demographic Research. *"Building an Academic Website and Hosting on Github."* Jul 2024, Rostock, Germany.

ACM FAccT. *"Data Externalities."* Mar 2021, Remote. Joint with Rediet Abebe, Mihaela Curmei, Andreas Haupt, and Yixin Wang.

Workshops

ACM CHI. *"Toward a More Comprehensive Understanding of Visualization Literacy."* May 2024, Honolulu, HI. Joint with Lily W. Ge, Maryam Hedayati, Yiren Ding, Karen Bonilla, Alark Joshi, Alvitta Ottley, Benjamin Bach, Bum Chul Kwon, David N. Rapp, Evan Peck, Lace M. Padilla, Michael Correll, Michelle A. Borkin, Lane Harrison, Matthew Kay.

HONORS AND AWARDS

NICO Intersection Science Fellowship, Northwestern University 2024
HCI + Design Cluster Fellowship, Northwestern University 2022
Phi Beta Kappa, Oberlin College 2020
Elbridge P. Vance Scholar of Mathematics, Oberlin College 2016 - 2020

PROFESSIONAL SERVICE

The Journal of Visualization and Interaction
Open Practices Chair 2024 - present

EAAMO Bridges (formerly MD4SG)
Co-Director 2022 - present
Co-Lead of the Data Economies Working Group 2021
Membership Manager 2021

Conference Reviewer
IEEE VIS 2024
ACM CHI 2024

Conference Volunteer
ACM STOC 2021
ACM EC 2020

TEACHING EXPERIENCE

Teaching Assistant

Northwestern University Evanston, IL
Computer Science Department 2021-2024
Design & Analysis of Algorithms, Mathematical Foundations of Computer Science (2x)

Oberlin College Oberlin, OH
Mathematics Department 2017-2020
Linear Algebra (2x), Discrete Mathematics (2x), Calculus II, Calculus I
Economics Department 2019
Principles of Finance
Computer Science Department 2017
Introduction to Computer Science

TECHNICAL

Programming
Python, R, JavaScript, PostgreSQL, Mathematica, LaTeX, Java, C

Organization
Github, Notion, Trello

Research Software and Skills
Qualtrics, Prolific