Reid (Yi) Chen

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Education

Ph.D. Electrical and Computer Engineering, University of Wisconsin-Madison, 2022-now

B.A. Computer Sciences *Honors in Major*, University of Wisconsin-Madison, 2019-2022

B.A. Mathematics, University of Wisconsin-Madison, 2019-2022

Research Areas

Crowdsourcing: efficiently transferring knowledge from humans to machines

Preference Learning: learning the distribution of human preferences

Publications

2023 **Chen, Y.** and Vinayak, R. K. "Query Design for Crowdsourced Clustering: Effect of Cognitive Overload and Context." *Conference on Computer-Supported Cooperative Work & Social Computing (CSCW)*, under review.

2023 **Chen, Y.**, Vinayak, R. K., and Hassibi, B. "Crowdsourced Clustering via Active Querying: Practical Algorithm with Theoretical Guarantees." *The Eleventh AAAI Conference on Human Computation and Crowdsourcing (HCOMP 2023)*

2023 Tatli, G., **Chen, Y.**, and Vinayak, R. K. "Learning Populations of Preferences via Pairwise Comparison Queries" *MFPL Workshop at the 40th International Conference on Machine Learning (ICML 2023)*

2023 **Chen, Y.**, Vinayak, R. K., and Hassibi, B. "Crowdsourced Clustering via Active Querying: Practical Algorithm with Theoretical Guarantees." *AI & HCI Workshop at the 40th International Conference on Machine Learning (ICML 2023)*

2023 Tatli, G., **Chen, Y.**, and Vinayak, R. K. "Learning Preference Distributions From Pairwise Comparisons." *9th International Workshop on Computational Social Choice (COMSOC 2023)*

Experiences

Graduate Research Assistant

Identified drawbacks in existing clustering methods and proposed solutions to these shortcomings. Investigated state-of-the-art methods through an extensive literature review. Implemented methods for enumerating polytopes in a high-dimensional setting.

Project Assistant

Participated in designing queries and developing GUI for crowdsourcing experiments. Analyzed the features of a large-scale medical dataset. Authored programs to automate the proof of a vast set of high-order polynomial inequalities.

CS540, Introduction to Artificial Intelligence Peer Mentor

Assisted students with Artificial Intelligence course homework and responded to AI and Python related questions on Piazza, dedicating 6 to 7 hours weekly to support students daily. Provided assistance with code debugging and imparted in-depth knowledge regarding neural network fundamentals to reinforce students' understanding. Organized one-on-one study sessions to aid students with programming assignments.

Note Taker

Developed detailed and accurate class notes, emphasizing essential aspects for clarity. Ensured that a legible copy of these notes was uploaded to the McBurney Center's website in PDF format within 24 hours of each class.

Undergraduate Research Assistant

Designed and implemented crowd clustering algorithms, conducting tests and simulations to validate results. Interpreted research papers and executed algorithms as described within them using Python and JavaScript.

Web Developer at Coding for Good

Enhanced code design and eradicated redundancy through refactoring, optimizing the code for potential future reuse. Leveraged EJS and Node.js in the development of both front-end and back-end of the New-Event-Section. Utilized HTML, CSS, JS, and jQuery to design and implement a vertical cover-flow slideshow.

Spanish Tutor at Greater University Tutoring Service

Prepared coursework and specific topics for beginners and intermediate level students. Assisted students in understanding grammar by explaining how to construct certain syntactic structures. Conducted exercises to improve students' oral expression skills.

(Programming) Language Skills

I am proficient in Java and C, with Python being my primary language for research purposes. I appreciate the typing systems in Rust and Haskell. I utilize AWS Lambda, AWS S3, React, Node.js, and MongoDB to execute a variety of crowdsourcing experiments. My native language is Mandarin Chinese, and I am fluent in English. I also have proficiency in Spanish, sufficient enough to order food in a Mexican restaurant.

Projects

A Single Shot MultiBox Detector Based Handwritten Formula Detector

Course project for CS539, Introduction to Artificial Neural Networks. Successfully created and annotated handwritten dataset to train a neural network architecture called ScanSSD to apply architecture to handwritten formula detection.

Understanding, Analysis, and Comparison of Convolutional Neural Network Architecture

Course project for CS532, Matrix Methods in Machine Learning. Organized and worked within a team of 3 students. Read several conference papers over the topic of convolutional neural networks. Wrote a report that summarized the main concepts of these articles.

TapWar

A two-player game with 50K downloads on App Store. Player who taps faster in the game is the winner. In this project, I learned how to rotate UILabel.

Mogicians Manual - iOS Version

Proficiently transplanted the Android version of App to the iOS version. Implemented the user interface code only with Swift without a storyboard. Utilized cocoapods to install a third-party library

to display GIF images. Integrated AVFoundation framework for audio function. Available on the GitHub. (Not available on App Store due to some technicalities.)

Sync SH

Developed an iOS app during high school for the management of mathematics homework. Learned the function of pushing notifications in iOS. Utilized a framework same as Parse to upload and notify about homework.

ChanGE

Recoded a Puzzle Game from Objective–C to Swift after the announcement of Swift. Developed a countdown mechanism with NSTimer/Timer. Implemented the animation of Timer with UIView animate function.

Updated September 2023