



Yuxuan Chen

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EDUCATION

University of Illinois at Urbana-Champaign
Bachelor of Science, Mathematics & Computer Science

Aug 2020 – May 2024
Cumulative GPA: 4/4

RESEARCH EXPERIENCE

ScribeAR Research Team

Feb 2023 – Present

Lawrence Angrave, Teaching Professor

Champaign, IL, United States

- Built a Captions feature using HTML/CSS, React TypeScript, and Material UI to enhance transcription user-friendliness
- Improving local storage, Speech-to-Text, and Speaker Diarization codebases
- Testing word accuracy of Speech Recognition APIs including WebSpeech, Azure and Whisper
- Paper accepted to 2024 ASEE IL-IN Section Conference

Updating CS 101 to Meet Current College Needs – GATE project

Sept 2023 – Present

Mattox Beckman, Teaching Associate Professor

Champaign, IL, United States

Mariana Silva, Teaching Associate Professor

- Reviewed and updated the CS 101 curriculum, identifying areas for expansion, reduction, or replacement to meet contemporary CS1 educational standards
- Conducted interviews and surveys with 12 professors from the Grainger College of Engineering to assess the current requirements of the CS1 course for engineering students
- Developing course content through PraireLearn ensuring alignment with the updated curriculum of the CS1 course

Select topics in Quantum Information Theory

Jan 2022 – May 2022

Felix Leditzky, Assistant Professor

Champaign, IL, United States

- Learned quantum information concepts including tensor products, quantum states, and entanglements
- Generated generalized Choi matrices for Depolarizing/Werner-Holevo Channels using Python
- Used SDP to numerically calculate upper bounds for Depolarizing/Werner-Holevo Channels of low dimension

Quantum Error Correction Code for Knots

Sept 2021 – May 2022

Eric Samperton, Assistant Professor

Champaign, IL, United States

- Learned quantum information concepts including qubits, stabilizer codes, and distance of code
- Implemented code in Python and Pari/GP to obtain differentials of chain complexes of knots in finite field $\mathbb{Z}/2$
- Calculated distances of code, logical qubits, and physical qubits of chain complexes through Python and SageMath

Detecting Knottedness with Quantum Computers

May 2021 – Jan 2022

Eric Samperton, Assistant Professor

Champaign, IL, United States

- Learned topological and quantum concepts including chain complexes, Khovanov Homology, and the QPE algorithm
- Implemented algorithms in Python and Pari/GP to obtain differentials of chain complexes of knots
- Constructed knot diagrams from SnapPy and generated random sample data to support current theorem of the complexity of computing Khovanov Homology

INTERN EXPERIENCE

AristAI – Cofounder, Front End Developer

Oct 2023 – Present

Qingquan Zhang, Adjunct Clinical Assistant Professor

Champaign, IL, United States

- Developing an AI Teaching Assistant Chatbot that can answer student questions for specific courses
- Implementing a faculty dashboard interface using HTML/CSS, Next.js TypeScript, and D3.js
- Designing an administrator panel interface using HTML/CSS and Next.js TypeScript for administrator usage

University of Illinois Research Park – EnterpriseWorks

Laura Bleill, External Engagement Director

Champaign, IL, United States

Senior Front End Developer Intern

Sept 2022 – Dec 2022

- Maintained and developed the [UIRP official website](#) on a weekly basis by fixing links, editing text, adjusting layouts, etc.
- Implemented multiple webpages for the UIRP official website, including Newsletter Subscription and Tenants page
- Created new websites for Palette ML, [Editekk LLC](#), and [GarboCarbo](#) at UIRP using WordPress/Webflow and HTML/CSS

Front End Developer Intern

May 2022 – Sept 2022

- Maintained the [UIRP official website](#) on a weekly basis by fixing links, editing text, adjusting layouts, etc.
- Created new websites for [Cache Energy](#) and [Ensaras, Inc.](#) at UIRP using WordPress with Elementor and HTML/CSS
- Implemented a Table Tennis webpage on the UIRP official website for the annual UIRP Table Tennis Competition

TEACHING EXPERIENCE

UIUC CS357 Numerical Methods I – Course Assistant

Jan 2022 – Present

Mariana Silva, Teaching Associate Professor

Champaign, IL, United States

- Assisting a class of over 400 students for 5 consecutive semesters to learn fundamentals of scientific computing and numerical methods including floating points, Taylor series, Markov chains, optimization, and PCA using Python
- Maintaining the official course website by updating lecture notes and course logistics using Ruby Jekyll
- Developing lecture questions and exam questions for the course through PrairieLearn
- Answering conceptual/coding questions in lecture sessions, group activities, office hours and class forum

UIUC CS124 Intro to Computer Science – Course Assistant

Jan 2021 – Dec 2021

Geoffrey Challen, Teaching Associate Professor

Champaign, IL, United States

- Assisted over 800 students in total over 2 semesters to learn fundamental computer science concepts including object-oriented programming, recursive coding, and data structures in Java
- Produced over 10 lecture/homework walkthrough recordings explaining programming syntax and patterns
- Answered programming and conceptual questions in help site hours and class forum

ORGANIZATIONS

UIUC Chinese Engineering Student Association (CESA)

Champaign, IL, United States

CESA Vice President

Jul 2023 – Present

CESA Public Relations/Outreach Department Director

Jul 2022 – Jul 2023

CESA Public Relations/Outreach Department Member

Dec 2021 – Jul 2022

- Leading an organization of 66 members in executing strategic initiatives and achieving organizational goals
- Oversaw the planning and execution of 7 major events including 2 ORD-UIUC student airport pickup events which helped 251 new students safely arrive at UIUC
- Fostering collaboration with companies including Tencent, Media, CheersYou, and EasyTransfer to secure \$50,000 in sponsorships for CESA

PROJECTS

US Pollution Atlas

Jan 2023 – May 2023

- Built a web application using Express and Google Cloud Database as backend database and React frontend UI
- Implemented frontend toggles, CRUD operations, advanced data queries, and visualizations of pollutant states.

NER Web

Mar 2023 – May 2023

- Built a Named Entity Recognition web application using React frontend UI and Django backend with spaCy

OpenFlights Data Analysis

Nov 2021 – Dec 2021

- Built a graph-based program using BFS traversal, PageRank, and Dijkstra algorithms with visualizations using C++

SKILLS & ABILITIES

- Programming/Tools: Python, Java, C++, C, HTML, CSS, JavaScript, TypeScript, React, Next.js, MySQL, Git, R, LaTeX

- Related Coursework: CS Education, AI/ML, Computational Social Science, Data Structures, Numerical Methods, Computer Architecture, Algorithms, Graph Theory, Database Systems, Abstract Linear Algebra, Statistics & Probability
- Language: Chinese (native), English (fluent) - TOEFL 116

HONORS & AWARDS

UIUC University Honors - Bronze Tablet Award (Top 3%)	2024
UIUC Outstanding Course Assistant Award	2023
UIUC Hoover Mathematical Scholar	2023
UIUC Edmund J. James Scholar	2022-2024
UIUC Dean's List	2020-2023