Yuhua Weng

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Education

University of Illinois at Urbana-Champaign Champaign, IL

Grainger College of Engineering - B.S. in Computer Science *August 2020 - May 2024 (Expected)*

- GPA: 3.98/4.0
- Dean's List: Fall 2020 - Present (Every Semester)
- Relevant Coursework: Algorithms & Models of Computation, Applied Machine Learning, Artificial Intelligence, Computational Photography, Computer Architecture, Data Structure, Database System, Data Visualization, Linear Algebra with Computational Application, Probability & Statistics, Text Information System

Experience

Course Assistant for CS 411 (Database Systems) January 2024 – May 2024

University of Illinois at Urbana-Champaign *Champaign, IL*

- Grading homework and group assignments of over 400 students.
- Helping with managing in-class group discussion sessions.
- Guiding students in database systems concepts such as MySQL, MongoDB, Neo4j, query optimization.

Research Assistant at Caesar Research Group April 2023 – Present

University of Illinois at Urbana-Champaign *Champaign, IL*

- Contributed significantly to the development of perpleweave.org, a dynamic web application designed to enhance networking opportunities among researchers attending academic conferences.
- Collaborated closely with cross-functional teams, working alongside UI/UX and Data Science team members, to design, build, and consistently improve the web app's functionality and user experience using **ReactJS**.
- Facilitated the analysis of SIGCOMM coauthorship datasets by extracting a list of the number of coauthors for each paper published for a year and total number of unique researchers for a given year using **Python** and creating coauthorship graph visualization using **NetworkX**.
- Officially endorsed by **SIGCOMM 22** as the networking platform for its participants, resulting in the enrollment of more than **200 conference attendees**, fostering valuable connections within the research community.
- Played a pivotal role in the recruitment process, meticulously reviewing resumes and assessing take-home assignments for over **20 prospective applicants**, contributing to the growth and strength of our research team.

Course Assistant for CS 124 (Intro to CS) January 2021 – May 2021

University of Illinois at Urbana-Champaign *Champaign, IL*

- Provided valuable assistance to students in comprehending Computer Science concepts and mastering **Java programming**.
- Demonstrated commitment by conducting 3-4 hours of virtual office hours weekly, offering dedicated support to students seeking clarification and guidance.
- Enhanced the learning experience by creating detailed walkthroughs for daily lessons, or offering alternative explanations to course content, ensuring a comprehensive understanding for all students.
- Fostered a collaborative learning environment by actively participating in online forums, promptly addressing student concerns related to homework assignments, machine projects (MPs), and providing personal reassurance and encouragement.

Stanford Pre-Collegiate Institute Participant August 2017

Stanford University *Stanford, CA*

- Engaged in advanced courses instructed by Stanford University professors, spanning humanities, sciences, and design thinking.
- Collaborated with peers on group projects centered on addressing global challenges and proposing innovative solutions.
- Cultivated interpersonal skills and gained a deeper understanding of diverse cultures, fostering a global perspective.

Selected Projects

Image Blending with Gradient-Domain Fusion | *Python, OpenCV, Google Colab* Sep. 2023 - Oct. 2023

- Implemented Poisson Blending technique to seamlessly blend an object from a source image into a target image.
- Enhanced blending results through the implementation of Mixed Gradients technique, resulting in better visual coherence and reductions in artifacts.
- Leveraged gradient-domain processing to convert a color image to grayscale while preserving important contrast information.

Flight Tickets Booking System | *ReactJS, NodeJS, Google Cloud Platform* Jun. 2022 - Aug. 2022

- Spearheaded the design and development of the web application's frontend using **ReactJS**, enhancing user experience and interface aesthetics.
- Implemented full CRUD (Create, Read, Update, Delete) operations for the passenger database, optimizing data management and accessibility, with seamless integration into **Google Cloud Platform**.
- Enhanced application functionality by introducing stored procedures and triggers, resulting in improved system responsiveness and user interaction.

Open Flights | *C++, VSCode* Oct. 2021 - Dec. 2021

- Utilized the OpenFlight dataset to devise an algorithm for finding the shortest path between two airports, optimizing travel route planning.
- Implemented **BFS Traversal** and **Dijkstra's Algorithm** to accomplish the project goal, demonstrating problem-solving skills and algorithmic expertise in project completion.
- Developed a **Degree Centrality Algorithm** to identify and rank the busiest and most popular airports globally, providing valuable insights into air travel trends.

honors/awards

AP Scholar with Distinction May 2020

Valedictorian May 2020

Skills

Languages: Chinese (native), English (proficient)
Computer: **Java, Python, C/C++, LaTeX, HTML, CSS, ReactJS**, SQL/MySQL, MongoDB, Neo4j, Ocaml, MIPS Assembly
Developer Tools: Git, Visual Studio Code, Android Studio, Tableau
Libraries: Pandas, NumPy, Matplotlib, PyTorch, OpenCV