Alfie Zhang

hzhang2275@wisc.edu | (608) 236 - 3290

EDUCATION

University of Wisconsin-Madison *Madison, WI*
Bachelor of Science in Computer Science and Mathematics (GPA: 4.0/4.0) Sep 2023 - Dec 2025
Courses: Data Structure and Algorithms, Operating System, Big Data System, Building User Interface, Virtual Reality, Digital signal processing, Linear Optimization, Real Analysis, Linear Algebra, Probability Theory, Discrete Mathematics.

Nanjing Normal University *Nanjing, China*
Bachelor of Science in Computer Science and Engineering (GPA: 92/100) (Top 1%) Sep 2021 - Jun 2023
Honors: First Class Scholarship (3 Times)

SKILLS

Programming Languages: Java, C, C++, C#, Python, Matlab, SQL
Tech Stack: JavaScript, TypeScript, HTML, CSS, React, Vue, Spring Boot, Docker, Git

EXPERIENCE

Teaching Assistant, University of Wisconsin Madison Department of Mathematics *Madison, WI*
Course: Introduction to Theory of Probability Aug 2024 - Present

- Evaluated assignments, quizzes, and exams, ensuring precise and consistent assessment of students' understanding of key probability concepts, including distributions, random variables, expectations, and stochastic processes.
- Delivered in-depth feedback to clarify complex topics, enhancing students' comprehension of probabilistic models and their applications in real-world scenarios.
- Collaborated with the course instructor to maintain grading consistency and to design evaluation rubrics that accurately reflect students' grasp of theoretical and applied probability concepts.

Research Assistant, Nanjing Normal University Research Lab *Nanjing, China*
Lead Researcher: Prof. Yanhui Gu May 2022 - Aug 2022

- Focused on **Visual Question Answering (VQA)** research to address complex applications such as recommender systems, after-service for online shopping, and text generation.
- Annotated and pre-processed two large-scale datasets **(VQR-CP & GQA)** for experimental evaluation, focusing on remote sensing image analysis, ensuring high-quality data for model training and validation.
- Designed and implemented a **novel scene graph-based attention mechanism** to jointly model image and question pairs, mapping visual and textual inputs to semantic representations in a unified space.
- Improved the **system's visual reasoning and compositional** question answering accuracy by 20%, demonstrated through rigorous testing and performance benchmarks on key metrics.

Teaching Assistant, Nanjing Normal University Department of Computer Science *Nanjing, China*
Course: Introduction to C++ Dec 2021 - June 2022

- Assisted in curriculum development by preparing lesson materials, homework assignments, and coding exercises, ensuring that the course structure aligned with learning objectives.
- Led a coding lab of 50 students, providing in-depth guidance on C++ fundamentals, including syntax, data structures, and object-oriented programming concepts.
- Offered individualized feedback on homework and lab assignments, improving student understanding of complex programming concepts and contributing to a increase in overall student performance.

PROJECTS

Badger Connect Aug - Sep 2024

- Developed a full-stack application using **React** for the web version and **React Native** for the mobile app, enabling dynamic searches of student information by name, major, and interests.
- Built and integrated a **Spring Boot** backend, utilizing the **Fetch API** for real-time data retrieval and efficient communication between the frontend and backend.
- Integrated **Elasticsearch** for advanced **search functionality**, implementing real-time, multi-criteria searches with fuzzy matching and autocomplete capabilities, significantly improving search accuracy and user experience.
- Utilized **Python(TensorFlow)** to analyze student data, identifying trends in academic performance and interdisciplinary interests, with insights displayed through interactive dashboards.

Path to Fortune Mar - May 2024

- Developed an immersive quiz game in **Unity with C#**, featuring a question progression system where difficulty escalates as players advance, creating a consistently engaging challenge for players.
- Utilized **Blender** to create custom 3D models for in-game assets, enhancing the visual appeal and contributing to an immersive game environment.
- Introduced a unique **Time Crunch** mechanic that rewards players with bonus points for answering questions quickly, adding a layer of intensity and encouraging strategic thinking under pressure.