Jingheng (Steven) Cai

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PROFILE

Efficient IT and Engineering expert with degrees from the University of New South Wales and the University of Sydney. Experienced in 3D modeling, design automation, and developing communication applications. Skilled in Python, C, and C#, with strengths in problem-solving, efficiency optimization, and user experience enhancement. Demonstrates strategic project management and technical documentation abilities, supported by multilingual proficiency and adaptable problem-solving skills.

EDUCATION

The University of New South Wales Sydney, Australia
The Master of Information Technology - WAM:76/100 Jun 2023 - Present
The University of Sydney Sydney, Australia
Bachelor of Engineering Honors (First Class: Mechanical Engineering) Feb 2019 - Jul 2023

WORK EXPERIENCE

Jacaranda Flame Consulting Sydney, Australia
Technical and Business Analyst - Internship Jun 2022 - Aug 2022

- Innovation in 3D Structural Modeling: Partnered with the University of Sydney to enhance 3D structural modeling processes for Hanlon Industries, resulting in a 15% improvement in accuracy and efficiency of structural assessments.
- Automation of Design Processes: Spearheaded the development and implementation of an automation process for billboard model creation in Tekla Structures, reducing the design cycle time by over 95%, from several days to under 30 minutes.
- Skill Acquisition and Application: Proactively mastered C# programming within 2 months, applying this new skill to customize software functionalities, which directly contributed to meeting the client's unique operational needs.
- Strategic Project Management: Utilized Gantt charts and project management methodologies to track and manage project scope, ensuring the timely delivery of 100% of project milestones, with a project completion rate that exceeded initial timelines by 10%.

RELEVANT PROJECTS

Directed Weighted Graph Implementation Project July 2024 - August 2024

Technologies: C++, Dynamic Polymorphism, Automated Testing Frameworks

- Innovative Design and Implementation: Designed and implemented a generic directed weighted graph in C++, utilizing dynamic polymorphism to manage both weighted and unweighted edges, enhancing the flexibility and functionality of the graph manipulation.
- Optimization of Graph Operations: Optimized graph operations including node insertion and edge connections, achieving efficient management of complex graph structures and ensuring high performance even with large datasets.
- Testing Framework Development: Developed and integrated a robust testing framework to validate all graph functionalities, leading to a stable and reliable software component with comprehensive test coverage that confirmed the correctness of all graph operations.
- Documentation and Code Readability Enhancement: Contributed to the improvement of project documentation and code readability, which facilitated easier maintenance and scalability of the graph implementation, receiving commendation for clarity and adherence to best coding practices.

Real-Time Messaging and Video Sharing Application, Sydney October 2023 - November 2023

Technologies: Python, TCP/UDP Sockets, Multithreading

- Efficiency and Concurrency Optimization: Developed a client-server system, achieving a 40% improvement in message delivery speed and supporting simultaneous video streams for up to 100 users.
- Scalable Server Architecture: Implemented a multithreaded server architecture, enhancing system scalability to handle triple the initial user load without performance degradation.
- Real-Time Communication Enhancement: Utilized Python threading to separate listening and sending tasks, ensuring 99.9% uptime for uninterrupted, real-time communication.
- Security and Protocol Design: Crafted custom protocols and a secure authentication system, increasing data security by 30% after rigorous testing and optimization.

SQL Database Developer for University Administration System June 2023 - July 2023

Technologies: SQL, PL/pgSQL, Database Optimization Techniques

- SQL Query Development and Maintenance: Developed and maintained a series of SQL queries and PL/pgSQL functions, effectively managing a database schema to support the administrative needs of a major university.
- Structured Database Management Implementation: Implemented a structured approach to database management, creating clear and maintainable SQL scripts that improved data retrieval processes for university staff and students.
- Performance Optimization: Successfully optimized multiple database functions to reduce the execution time by 30%, ensuring high performance and responsiveness during peak usage times.
- Debugging and Data Reliability Improvement: Led a critical debugging initiative that resolved previously undetected data inconsistencies, significantly enhancing data reliability and user trust in the university's administrative system.

ADDITIONAL INFORMATION

- Languages: Mandarin (Native), English (Fluent), Cantonese (Conversational)
- Soft Skills: Analytical, problem-solving, project management, adaptability
- Technical Skills: Python, C++, C, C#, HTML, CSS, MySQL, SOLIDWORKS, MATLAB, ANSYS, COMSOL, Microsoft Office Suite