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SUJAL BOLIA

EDUCATION

University of British Columbia, Vancouver, BC   **Sep 2020—May 2024**
Bachelor of Science in Computer Science
Courses: Advanced Algorithms (DSA), Cloud Computing, Randomized Algorithms, Hardware & OS, ML

WORK EXPERIENCE

Machine Learning Engineer (Contract) | IIT Bombay   **July 2024—Present**
- Architected a machine learning model-agnostic deployment and testing tool, enabling researchers to efficiently evaluate their models
- Implemented explainable AI methods across various models, providing researchers with insights into model decision-making processes
- Trained a transformer-based model that achieved an IoU score of 0.752, resulting in a 15% improvement

Software Engineer Intern | Microsoft   **May–August 2022**
- Engineered a performant Discord bot in Rust to automate the gameplay of text-based Werewolf games
- Developed a custom markdown-to-HTML converter for dynamic PDF generation, leveraging *wkhtmltopdf* to allow users to create well-formatted PDF documents
- Designed a BCNF-normalized database schema to manage game data efficiently, optimizing query performance for rapid game state updates

Software Engineer Intern | Microsoft   **May–August 2021**
- Developed a command-line tool to extract images from various compression formats
- Employed header analysis to automatically select the decompression algorithm (LZMA, LZHAM, ZSTD)
- Created low-level Rust bindings for the LZHAM decompression format to enhance compatibility
- Optimized code through parallelization and memory management, achieving a 10x speedup, reducing runtime from over 4 minutes to under 20 seconds for large files
- Implemented a robust continuous integration and deployment (CI/CD) pipeline using GitHub Actions

PROJECTS

insightUBC (Course Project)   **Jan—Apr 2023**
- Designed an API server in TypeScript to provide access to historical university section and room data, providing seamless access to over 100,000 data points
- Implemented a custom EBNF-based query language for flexible data retrieval and filtering
- Constructed a robust test suite to ensure API reliability and accuracy
- Built a Discord bot frontend to enable user-friendly interaction and visualization of course data

peerAdvice (nwHacks 2023)   **Jan 2023**
- Designed a mutual mentoring platform connecting students across year levels for personalized support
- Integrated Firebase authentication for secure user login and Calendly for seamless scheduling
- Led a team of 4 to deliver the project successfully within a 24-hour deadline

serenity-utils   **Aug 2020–Jul 2022**
- Developed an async Rust crate to enhance the *serenity-rs* Discord API wrapper, with over 8,900 downloads
- Implemented pagination menus and timeout-based input watchers for interactive user experiences
- Provided custom model parsing for efficient data handling and streamlined development

SKILLS

Languages: Rust, TypeScript, JavaScript, Python, Java, C, C++, Go | **Web Frameworks:** Flask, Django, React, Node.js, Express.js | **ML:** TensorFlow, PyTorch, CNNs, Transformers | **Testing:** GDB, LLDB, JUnit, unittest, mocha | **Database:** PostgreSQL, MySQL, SQLite, Redis, MongoDB | **Cloud:** AWS, Docker, Kafka, Spark