Bruce Fan
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Passionate and aspiring computer science major at the University of Texas at Austin, with a strong foundation in application development and quantitative reasoning. Demonstrated history of academic excellence and innovative project development.

Education

University of Texas at Austin – *BS in Computer Science*
GPA: 3.94/4.0 | 2023 – Present | Honors Student
Relevant Courses: Principle of Machine Learning, Computer Graphics, Data Management, Cloud Computing, Operating Systems, Computer Architecture, Algorithms and Complexity, Contemporary Issues in Computer Science, Data Structure, Linear Algebra, Discrete Mathematics, Number Theory, Statistics, Physics II

College of San Mateo – *AS in Computer Application Development*
GPA: 3.97/4.0 | 2020 – 2022 | Honors Student
Relevant Courses: Networking, Databases, Unix/Linux, Python, JavaScript, OOP, Data Structures (Java)

Carlmont High School, Belmont, CA
GPA: 4.33/4.0 | 2019 – 2023
Relevant Courses: AP Computer Science, Machine Architecture, Multivariable Calculus

Experience

UT Course Term Projects *(2023 – Present)*

- **File Compressor using Huffman Coding (Java)** – Developed a lossless file compressor using Huffman Coding for efficient data compression.
- **Pipelined ARM Processor Implementation (C)** – Created a simulation of pipelined ARM processor, supporting a large set of ARM processor. Additionally includes various feature like caching and branch prediction.
- **Gradient Descent on a Cloud Cluster (PySpark)** – Implemented batched gradient descent on a multi-gigabyte dataset which as deployed on a Google Cloud-hosted Spark Cluster.
- **Expanded PintOS Capabilities** – Designed and implemented various features into PintOS, an operating system including priority thread scheduling, virtual memory, complex system calls, and a robust hierarchical file system.

Freelance Application Projects *(2018 – Present)*

- **Minesweeper Plus (2024)** – Redesigned Minesweeper with dynamic game boards using Voronoi Tessellations and wave function collapse algorithms.
- **Texas Game Jam (2023)** – Collaborated in a team to develop an award-winning Unity-based video game.
- **Robotics Coding with VEX (2019)** – Built and programmed a four-wheeled robot through a maze using C++, utilizing mathematics and real-world measurement for precision navigation.
- **Community Library System (2018)** – A library system for managing and recording customers, book storage and checkouts. Implemented in Java, utilizing JavaScript/Ajax for web page UI and MySQL for data store.

Freelance Mobile App Projects *(2020 – Present)*

- **Exodus - STP (iOS)** – Developed a shoot-em-up game using Swift with expandable combat systems and AI-driven enemy generation. Apple Store link
- **ColorSwing (iOS)** – Designed a hyper-casual game with a focus on simple yet challenging gameplay. Apple Store link
- **ColorSwipe (iOS)** – Created a UIKit-based game with Auto Layout, Core Data, and responsive audio feedback. App Store link

Skills

- **Programming:** Java, Python, JavaScript, C/C++, Swift, Bash, ARM/MIPS
- **Web Development:** MERN Stack (MongoDB, Express, React, Node.js), Ajax, HTML, CSS, Rest
- **Mobile Development:** iOS (Swift), Android, App Store Connect, Unity
- **Big Data & Cloud Computing:** Hadoop, Spark, Cassandra, GCP, AWS, Azure, Docker, Kubernetes, JUnit
- **Databases:** MySQL, PostgreSQL, NoSQL, MangoDB
- **System Programming & Debugging:** C, C++, Linux, GDB, Syslog, Sysctl, CPU Architecture, Compiler Theory, Concurrency
- **Machine Learning & AI:** Matlab, Octave, R, PyTorch, TensorFlow, SLAM
- **Mathematical Modeling & Simulation:** Numerical Analysis, Algorithm Design, Statistics

Tools & Frameworks

- Xcode, Git, GitHub, IntelliJ, PyCharm, VS Code, Jupyter Notebook, Unity, Godot, Docker, Linux