Brian Chu

Software Developer

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Summary

Masters student in University of California, San Diego and recent Computer Science graduate and specialty in ML frameworks. Proven experience as a Software Engineering Intern at Vulcan Engineering, contributing to a key project focused on machine learning model optimization and achieving a 15% improvement in model accuracy. Proficient in Python, Java, and C++, with experience in developing and deploying web applications.

Education

UCSD (University of California, San Diego) *GPA: 3.7*

MS, Chemical Engineering *Sept. 2024 - Jun. 2025*

- Elective Graduate Courses: Topology, Nanoengineering, Mechanical Heat Processes

UCSD (University of California, San Diego) *GPA: 3.5*

BS, Computer Science w/ Spec in ML/AI and Chemical Engineering *Sept. 2020 - Jun. 2024*

- Member of Association of Computing Machinery (ACM), Chemical Engineers (AIChE), and Quantum Computing (QCSD)
- Key Courses: Quantum Mechanics, Deep Learning for Natural Language Understanding, Unsupervised Machine Learning

Work Experience

Vulcan Engineering Solutions *Dec. 2024 - Present*

AI/ML Engineer Intern *Irvine, CA*

- Built scalable R-CNN models and used OpenCV for image analysis, improving defect detection by 33%.
- Collaborated with full-stack teams to pipeline and preprocess data, enhancing model readiness and customer experience.
- Developed a LangChain-Groq LLM chatbot that helps structural engineers interpret design documents and standards (e.g., ASCE 7).
  Technologies used: *Python, Microsoft Azure, LangChain, Hugging Face Transformers, PyTorch*

University of California, San Diego (Summer Battery Camp) *Jun. 2022 - Aug. 2022*

Lab Intern *San Diego, CA*

- Planned and executed independent battery performance tests, increasing reliability insights by 50%.
- Applied research from seminars to revise chemical formulas, enhancing fabrication efficiency of battery components.

Senior Design Project Team Member (UCSD) *Jan. 2023 - Jun. 2023*

Process Engineer *San Diego, CA*

- Designed a Methanol to Dimethylamine plant with ASPEN, optimizing conversion rate by 85%.
- Lowered electricity usage by 55% while maintaining cost effectiveness and safety.

Skills / Technologies

Languages	Python, C++, Java, ARM Assembly, LaTeX, Bash, SQL
Libraries & Frameworks	SpaCy, Keras, TensorFlow, LangChain, Hugging Face, Seaborn, Scikit-Learn, RMI
Technologies & Tools	Microsoft Azure, VS Code, React, Django, Flask, Git, Unix, MySQL, Jira
Engineering Frameworks	MATLAB, ASPEN, COMSOL, BTDSA, Arduino
Interests	Soccer, Formula 1, Cars, ML/AI, Control Systems, Battery Technology, Plasma Physics

Projects

Natural Language Processing (NLP) Drug Drug Interactions *San Diego, CA*

Technologies used: *Python, spaCy, Seaborn, Hugging Face Transformers, PyTorch*

- Implemented KGNN from similar research using Tensorflow and Keras
- Performed tokenization of drug effects
- Generated corpus for each description of combined drug effects

Provinces Enterprise System *San Diego, CA*

Technologies used: *Java, MySQL, HTML, CSS*

- Loaded 500 providence-capital matches from a database using MySQL to implement a client-server system
- Created a user-friendly UI/UX design using HTML, CSS
- Implemented Creational Design Patterns such as Abstract Factory Classes, Builder Classes, Prototyping

Hearts Cards Game *San Francisco, CA*

Technologies used: *Java, JavaFX, Spring Boot Framework*

- Launched online cards game using Java Spring Boot Framework with JDBC
- Incorporated multi-threading, servlet, remote method invocation (RMI)
- Data visualization model on counting cards with option to choose a human-like perspective or a cheating perspective