FRANCISCO GARCIA

Undergraduate Student

951 391 9170
San Diego, U.S.
frgarciaa1@gmail.com
github.com/FrancGarcia
Francisco Garcia

SKILLS

Languages: Java, Python, C/C++, HTML.

Technologies: GIT, GitHub/Actions/Project, CodeQL, JUnit, Web API, ChatGPT API, Whisper API, MongoDB, Docker.

Techniques: Agile software process, Behavior-Driven Development, Object mocking, Continuous integration, Refactoring, Design Patterns: Strategy, Adapter, Observer, Abstract Factory, Builder, MVP.

EDUCATION

9/2021 - 6/2025 **B.S. Computer Engineering** — **University of California, San Diego**
Enrolled full-time.

PROJECTS

9/2023 - 12/2023 **Recipe Creator** — **Java, Gradle, OpenAI API, MongoDB, Docker**

- Orchestrated a team of 6 developers in an Agile environment, leading the development of a Recipe Creator with voice-recognition and cross-platform compatibility. Integrated OpenAI's Whipser API and Dall-E API seamlessly into the system.
- Managed iterations using GitHub Project, organized user stories for Behavior-Driven Development (BDD), and orchestrated 100+ tasks based on priority and estimations.
- Implemented Agile software practices such as pair programming, conducted code reviews, and established continuous integration, resulting in a 15% increase in productivity. Employed mocking techniques, conducted JUnit tests, and executed integration tests with GitHub Actions to ensure the application's robustness and reliability.
- Engineered CRUD operations for maintaining, updating, and deleting recipes in the MongoDB database, ensuring efficient data handling and a smooth user experience.

3/2023 **HIV Strand Tracer** — **C++, Makefiles**

- Designed HIV Strand Tracer utilizing adjacency matrix of tuple objects to represent HIV strands as graphs.
- Implemented efficient graph traversal algorithms to find shortest unweighted and weighted paths in O(|V|+|E|log|E|) time.
- Optimized the representation of sparse graphs by replacing the matrix with an adjacency list, resulting in a substantial reduction of memory usage, particularly in worst-case scenarios of sparsity.

3/2023 **File Compressor/Uncompressor** — **C++, Makefiles**

- Devised an encoding tree and decoder employing pertinent data structures to proficiently compress and uncompress files within O(N logK) time.
- Developed parsing techniques adept at handling various scenarios including empty files, small files, large files, alphanumerics, and duplicate input streams.
- Innovated a highly efficient header design utilizing 3-byte chunks to encode 256 integers, resulting in a remarkable reduction in file compression size by more than 25%.

EXPERIENCE

6/2023 – 9/2023 **Engineering Intern ∼ Software Security Analyzer** — **Solar Turbines**

- Led team research on 10+ security solutions; analyzed and refined results for best solution using Agile methodologies.
- Aided in maintaining IEC 62443 Certification for our software products by integrating the SAST tool in the CI/CD pipelines, preventing 100+ security exploitations outlined by CVE Program.
- Designed and developed script automation for the creation of work items for specific vulnerabilities found, saving half dozen engineers 4 hrs/week in DevSecOps cycle.

1/2023 – 3/2023 **Tutor ∼ Computer Science and Engineering** — **UC San Diego, CSE**

- Facilitated 90% students' confidence growth rate in C programming by understanding their needs and applying the best solutions to support them; leading 15, 1-on-1 tutor sessions, weekly.
- Guided students through memory management, pointer functionality, and other C topics using visual techniques and probing questions.
- Organized and planned future Programming Assignments, worksheets, and testing schedules with other tutors, Teaching Assistants, and the professor within the 11-week quarter.

LANGUAGES

English - native, **Spanish** - native