

ANDREW RATZ

4020 Maguire Blvd Apt 2303, Orlando, FL 32803

andrewratz47@gmail.com · 239-789-8112 · andrew-ratz.pages.dev · linkedin.com/in/andrewratz · github.com/ar4757

EDUCATION

University of Florida

Master of Science - Computer Science

Gainesville, FL

Aug '19 - Dec '20

University of Florida

Bachelor of Science - Computer Science, Minor Mathematics

Gainesville, FL

Aug '15 - May '19

EXPERIENCE

Lockheed Martin

Senior Software Engineer

Orlando, FL

Aug '23 - Present

- Spearheaded migration from Linux Makefile and Windows Visual Studio solutions to a cross-platform build system using CMake, significantly reducing the overhead of supporting two ecosystems.
- Planned and architected a solution to combine two C++ product lines into one code base to reduce maintenance overhead. Made use of object-oriented principles to share code between the products.
- Initiated migration of our products from C++ to Rust to satisfy government initiatives for software safety and security.
- Led operations of the program's on-premise GitLab CI/CD as an owner/maintainer.
- Established build, execute, test, and deploy phases on GitLab using YAML to automate code testing.
- Created a dashboard for simulation data metrics, developed as a single-page web app using Vite, React, JavaScript, Node.js, and CSS. Hosted using AWS GovCloud and deployed via Terraform. All simulation output data generated by the algorithms and performance teams is ingested into the PostgreSQL database. The dashboard website then displays this simulation data over time and allows for filtering.
- Pioneered an automation tool in Bash and Python that performs regression analysis of the simulation in parallel on a high performance computing cluster and posts results to GitLab. Created GUI in Qt to make it intuitive for users.
- Became the team's Product Owner, responsible for planning, estimating tasks, delegating work to team members, interfacing with the customer on core product features, and delivering in a timely manner.

Lockheed Martin

Software Engineer

Orlando, FL

Mar '21 - Aug '23

- Proposed and implemented simulation framework classes in C++ that are now used company-wide.
- Implemented new datalink message formats and protocols in C++ in accordance with MIL-STD-1553. Utilized bit encoding/decoding, serialization, endianness, bit shifts, and masking.
- Optimized sim bottleneck by converting CSV files to binary format, cutting sim load time down by 90%.
- Worked on a machine learning (ML) and artificial intelligence (AI) stretch assignment where I trained an image recognition model using Python and Pytorch.
- Served as Scrum Master for 2 years, leading the team's Agile ceremonies such as daily standup, sprint planning, and backlog refinement.

Epsilon Systems Solutions

Software Engineer Intern

St. Petersburg, FL

Sep '20 - Dec '20

- Developed new features for radar systems, such as data serialization, Qt GUI support, and C++11 modernization efforts.

Modernizing Medicine

Mobile Software Engineer Intern

Boca Raton, FL

May '19 - Aug '19

- Lead the development of an internal UI automation test suite framework for iOS, written in Swift.
- Migrated all of the company's medical iOS apps to use the automated testing framework, drastically reducing the need for manual QA testing and saving tens of man-hours daily.
- Coordinated daily with a multicultural team distributed across North and South America.

PROJECTS

Game Price Drops

Full Stack Developer

Orlando, FL

Jan '24 - Present

- Created a web app which scrapes sales content every night and displays it to users. Allows for filtering by various criteria, complex searches, and subscribing to receive email updates when games go on sale.
- Wrote the frontend using JavaScript, TypeScript, React, Vite, HTML, and CSS.
- Wrote the backend using Node.js for both the scraper and the REST API.
- Hosted using AWS S3, EC2 instances running Docker containers, Lambda, and PostgreSQL RDS.
- Utilized Terraform to automate deployment of all infrastructure to AWS (infrastructure as code).

Route My Run

iOS, Swift

Gainesville, FL

Nov '19 - Apr '20

- Developed iOS app in Swift that can provide users with dynamically generate running routes. Makes REST API calls display paths the runner can take that meet their search criteria (distance, number of crossings).
- The app actively monitors the user during a run and provides GPS and Voice guidance. Included a social network feed using Facebook login and NoSQL data storage using Firebase.
- As part of my senior capstone, created mockups/wireframes and held user testing to iterate the UI/UX to deliver the best experience.

"Backpacking" Unity Game

Unity, C#

Gainesville, FL

Aug '19 - Dec '19

- Programming using C#, developed a 2D role-playing adventure game alongside a team of artists, writers, and developers. The game contains over 5 hours of content to explore.
- Implemented state machines, animations, character pathfinding, and AI decision trees in combat to create a dynamic and engaging experience for the player.

Fusion Calculator

iOS, Swift

Fort Myers, FL

May '19 - Aug '19

- Created an iOS app using Swift with completely custom UI and animations.
- Using scraped data, I created a dictionary describing all possible fusions to create a given character. Stored this cleaned data in JSON.
- Deserialized the JSON data stored in Core Data to display intuitive information on all possible fusions.

RecipEase

Android, Java

Gainesville, FL

Jan '18 - May '18

- Performed full-stack development of an Android app using Java that recommends recipes to user's based on what they have in their pantry.
- Starting with an MIT database containing over 1 million recipes, I created algorithms to categorize all recipes, allowing for results to be dynamically generated based on what ingredients are available.
- Added support for rating and organizing recipes, a commenting system, and more, to both the frontend in Java and the backend in Firebase NoSQL.

SKILLS

Programming & Scripting Languages:	C, C++, Objective-C, C#, Java, Swift, JavaScript, React, MATLAB, Python, Bash, YAML
Software Deployment:	Git, GitHub, GitLab, Bitbucket, AWS, Nexus Package Manager, Kubernetes, Docker
Database:	SQL, NoSQL, PostgreSQL, Google Firebase
IDEs:	Visual Studio, VS Code, Eclipse, Unity, Xcode, Android Studio
Misc:	Selenium, Tomcat, Apache, DIS, JSON, Slurm, Jira, Confluence, Agile, Scrum
Systems:	Windows, Linux, VxWorks, iOS, Android, Internet of Things (IoT)

ACCOLADES

Helping Hand Award

Lockheed Martin

Orlando, FL

Q3 2024

Top Performer

Lockheed Martin

Orlando, FL

2022 - 2024