Andrew Dover

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Education

San Jose State University San Jose, CA
Bachelor of Science in Software Engineering *Dec. 2027*

- **Organizations:** Software and Computer Engineering Society; Responsible Computing Club
- **Relevant Coursework:** Data Structures & Algorithms; Computer Organization & Architecture; OOP; Linear Algebra; Multivariable Calculus

Experience

FiveM Development San Jose, CA
Software Engineer *Sept. 2025 – Dec. 2025*

- Engineered 10+ custom gameplay systems integrating Lua client/server logic with various API's
- Designed scalable JSON communication between game servers and MySQL database, supporting over 30 users in real time
- Collaborated with server admins to deploy modular features across 50+ live resources

SJSU College of Engineering San Jose, CA
Software Engineering Intern *Dec. 2025 – Jan. 2026*

- Built a monitoring service ingesting Prometheus metrics, detecting missing time-series data, and backfilling null values to ensure dashboard accuracy
- Improved CI/CD reliability by implementing thread-safe deployment coordination with locks to prevent race conditions between concurrent deploys
- Scraped Prometheus metrics and modeled JSON responses with dataclasses for clean, structured data handling

Projects

Liturgical.Display | *Python, FastAPI, Tailwind, Vosk STT Model*

- Developed a voice-controlled presentation system with FastAPI for real-time slide and text updates (<50ms latency)
- Integrated offline speech recognition using Vosk STT for responsive, network-independent operation
- Designed modular architecture supporting concurrent users and low-latency websockets

Spartan LMS | *Python, Flask, SQLite, SQLAlchemy*

- Built a lightweight Learning Management System (LMS) modeled after Canvas with Flask and SQLAlchemy
- Implemented user authentication, grade management, and file handling features with secure session logic
- Developed role-based dashboards improving course interaction efficiency

APRS Hiking Tracker | *Python, PostgreSQL, Mapbox, APRS TCP Stream*

- Created a self-tracking system for hiking routes using APRS radio packets to map personal call signs in real time
- Implemented APRS TCP data parsing and geospatial queries using PostgreSQL/PostGIS
- Integrated Mapbox API to visualize live route tracking on an interactive frontend

Rust+ IoT Bridge | *Python, FCM, Docker*

- Built an event-driven IoT gateway that listens directly to the Rust+ companion API and triggers LAN-based devices in real time
- Designed a config-driven rule system (YAML) to map game events to physical device actions (ESP32 siren/LED)
- Added debouncing, retries, and concurrency controls to ensure reliable event forwarding

Real-Time ISS Doppler Tracking | *Python, SGP4, Orbital Mechanics*

- Built a real-time system to calculate Doppler-shifted frequencies of the ISS using ground-station IP geolocation
- Parsed and propagated ISS orbital elements via the SGP4 model to compute precise position and velocity vectors
- Applied multivariable calculus to determine radial velocity between observer and ISS, enabling accurate Doppler shift prediction for communication signals

Technical Skills

Languages: Python, Java, Lua, HTML, CSS, JavaScript/TypeScript, SQL
Frameworks: FastAPI, Flask, React, Next.js, Tailwind
Tools: Git/GitHub, Linux, Docker, Docker Compose, VS Code