Alvaro Valdez-Duran

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Education

University of Washington   **June 2025**
Bachelor of Science in Computer Science   *Tacoma, Washington*

Relevant Coursework

- Data Structures
- Algorithms Analysis
- Database Management
- Object-Oriented Programming
- Security Engineering
- Web Development
- Machine Learning
- File Scripting
- Computer Security

Experience

University of Washington   **September 2024 - March 2025**
Teaching Assistant   *Tacoma, Washington*

- Assisted over 30 students in understanding core programming concepts like variables, loops, and conditionals in an introductory programming course, leading to a 20% increase in average student performance on assignments.
- Provided hands-on support during weekly lab sessions, troubleshooting and guiding students through debugging processes, improving their skills in solving problems and code quality.
- Worked with provided lab materials to facilitate weekly lab sessions, increasing student engagement and improving the retention of key concepts by 15%.
- Utilized strong communicative skills in conveying complex concepts to students in an understandable manner to resolve issues.

Projects

Library Book Management System | *React, Node.js, Next.js, Postgres, Docker, Postman, Git*   **Oct 2024 - Dec 2024**

- In a team of four engineers developing a full-stack library management system, I contributed to both frontend and backend development using React, Node.js, and PostgreSQL. By implementing Agile methodologies, including sprint planning and code reviews, we accelerated feature delivery by 15% improving development efficiency and user experience
- To streamline book management in a web application, I developed backend API routes in Node.js for efficient deletion of records by ISBN, title, or author. By integrating PostgreSQL, I enabled real-time data updates, reducing query execution time by 30% and improving system reliability.
- To improve the accuracy of bulk book imports, I wrote Python scripts to clean and preprocess 10,000+ incoming .csv records. This reduced formatting inconsistencies by 90% and minimized database insertion errors, ensuring seamless integration into PostgreSQL
- Applied DevOps principles, utilizing Docker for containerization and improving deployment efficiency by streamlining environment consistency across development and production.

Dungeon Adventure | *LibGDX, Java, Git*   **July 2024 - August 2024**

- While developing a Java-based dungeon exploration game in LibGDX with a team of three, I implemented core gameplay mechanics, including player movement and combat systems. By ensuring seamless integration of game logic, we improved responsiveness and reduced movement lag by 40%, enhancing the overall player experience.
- Contributed to 30% of core systems, ensuring seamless integration between player actions, combat logic, and visual/audio feedback.
- To ensure timely delivery of project milestones in a fast-paced environment, I coordinated with teammates using Agile methodologies like daily stand-ups and sprint planning. This improved task prioritization and reduced project delays by 20%, ensuring all deadlines were met efficiently.

Stuxnet Cybersecurity Incident Response Analysis   **March 2025**

- Researched and documented Advanced Persistent Threat (APT) tactics, including zero-day exploits (CVE-2010-2568, CVE-2010-2729, CVE-2008-4250, CVE-2010-2743) used to infiltrate air-gapped systems.
- Conducted an in-depth analysis of the Stuxnet malware, examining its attack lifecycle, key players, and impact on Iranian nuclear facilities.
- Investigated defensive measures, analyzing Iran's cyber resilience strategies, post-attack cybersecurity improvements, and implications for compliance audits.
- Co-authored an executive-level incident report and delivered a technical presentation on Stuxnet's attack and defense mechanisms.

Technical Skills

Languages: Python, C, C#, Java, JavaScript, TypeScript, SQL, R
Developer Tools: VS Code, IntelliJ, PyCharm, Git, GitHub
Technologies/Frameworks: LibGDX, React, Next.js, Node.js, Docker, Postman, Arduino
Cloud Platforms: AWS, Azure, Render