

# ZACK NELSON

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## SUMMARY

Veteran full-stack software engineer with hands-on experience building and deploying real-world web apps, developer tools, and ML models. Skilled in React, FastAPI, and PostgreSQL, with recent projects including a job tracker with analytics, an AI-powered Git CLI, and a drone-based object detection pipeline. Passionate about solving real problems with clean, scalable code and thoughtful design.

## TECHNICAL SKILLS

**Languages:** Python, C++, JavaScript, TypeScript, SQL  
**Web Development:** React (Vite), FastAPI, Tailwind CSS, Axios, Node.js  
**Databases:** PostgreSQL, SQLite  
**Machine Learning:** PyTorch, TensorFlow, NumPy, Pandas, OpenCV  
**Tools & Platforms:** Git, GitHub, VS Code, Jupyter, Chart.js, Render, Vercel, Docker (familiar)

## ADDITIONAL CREDENTIALS

**Secret Security Clearance (Inactive):** U.S. Department of Defense

## PROJECTS

### Job Log

**React, FastAPI, PostgreSQL** | [Demo](#) | [GitHub](#)

- Built a secure REST API with API key protection and integrated it into a React frontend using Axios
- Enabled CSV export, tag/status filtering, and a 7-day trend analytics dashboard using Chart.js
- Created a responsive UI with Tailwind CSS; deployed to Vercel (frontend) and Render (backend + PostgreSQL)

### Commit Companion

**Python, OpenAI API** | [GitHub](#)

- Developed a CLI tool that uses OpenAI's GPT API to auto-generate Git commit messages from staged diffs
- Supports Conventional Commits, tone customization, and environment-variable-based config for flexible use
- Includes Git hook installer for seamless automation in local Git workflows

### Aerial Object Detection

**YOLOv8, Python** | [GitHub](#)

- Developed a YOLOv8-based object detection model for drone imagery classification used in environmental impact assessments
- Configured CUDA-based parallel processing on a dual-GPU server via SSH, accelerating PyTorch training
- Labeled drone imagery using QGIS and CVAT to support model training

## EXPERIENCE

### Math Tutor

2023 – 2024

*Private Tutoring*

*Santa Rosa, CA*

- Tutored algebra to calculus, emphasizing structured problem-solving and logic, improving average scores by 31%
- Designed exercises that mirrored debugging and algorithmic thinking in software development

### Photographer

2018 – Present

*Freelance*

*Santa Rosa, CA*

- Specialized in portrait photography with an emphasis on lighting, composition, and advanced editing techniques
- Mentored 30+ aspiring photographers globally, strengthening technical training and communication skills

### Military Police

2013 – 2018

*U.S. Marine Corps*

*Okinawa, Japan & South Carolina*

- Supervised 70 personnel and managed logistics for assets valued at \$4M+ with zero losses
- Oversaw 23 firing ranges and ensured compliance with safety regulations across 600,000+ rounds

## EDUCATION

**Bachelor of Science in Computer Science, Magna Cum Laude**

GPA: 3.78 | Major GPA: 3.96

*Sonoma State University, May 2025*

*Rohnert Park, CA*