BENJAMIN A. WEEKS, P.E.

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PROFESSIONAL SUMMARY

Licensed Professional Engineer transitioning to software development with 17 years of electrical engineering experience in control systems, data analysis, and project management. Recently completed Harvard's CS50 course, building a 2D game with SQL database integration from scratch. Proven track record of managing large-scale projects, leading technical teams, and developing efficient workflows. Strong foundation in MATLAB programming, systems analysis, and problem-solving, seeking to leverage technical expertise in software development roles.

SOFTWARE DEVELOPMENT PROJECTS

JumpSim – 2D Platformer Game with Database Integration (Playable Here)

CS50 Final Project | 2025

- Designed/developed a complete 2D platformer game from scratch using Lua with LOVE2d framework
- Implemented object-oriented programming with custom entity classes for collision detection, physics, and game logic
- Integrated SQLite3 database to log player statistics, track completion times, and display top 10 scores
- Built save/load functionality and pause menu system with multiple game states
- Applied SQL injection prevention techniques using parameterized queries and input sanitization
- Created cross-platform builds for Windows, macOS, Linux, and web deployment

MATLAB Data Analysis & Simulation Tools

Bureau of Reclamation | 2008-2025

- Developed MATLAB scripts to import and analyze CSV datasets for hydroelectric generator testing
- Built automated data processing tools to calculate step/frequency responses from field test data
- Created Simulink feedback control system models to simulate real-world generator behavior
- Enhanced Visual Basic test equipment software to improve UI/UX and hardware compatibility

PROFESSIONAL EXPERIENCE

Engineering Project Lead

Bureau of Reclamation, Technical Service Center – Denver, CO | June 2008 – September 2025

- Managed six-figure projects from planning through commissioning, serving as client liaison to 5 regional offices across the western United States
- Led team of 6 engineers, managing project budgets and coordinating powerplant personnel/contractors
- Successfully commissioned 12+ new digital control systems for hydroelectric generators, improving reliability and power output
- Developed efficient compliance testing workflows that reduced testing/generator downtime by 50%
- Created comprehensive procedures enabling field personnel to perform routine tests independently, reducing travel costs by 25%
- Mentored junior engineers in testing, generator tuning, and project management methodologies
- Designed and tested control systems for governor and excitation systems on hydroelectric generators, specializing in digital and analog systems

TECHNICAL SKILLS

- **Programming Languages:** Python, JavaScript, HTML/CSS, SQL, C, C++, Lua, MATLAB, Visual Basic
- **Frameworks & Tools:** Flask, Git, GitHub, Visual Studio Code, LOVE2d, Simulink
- **Database:** SQLite3, database design, SQL queries, data analysis
- **Engineering:** Control systems, digital/analog systems, AutoCAD, PowerWorld, SolidWorks

EDUCATION & CERTIFICATIONS

Harvard CS50x: Introduction to Computer Science

Completed 2025 | Comprehensive computer science fundamentals including above programming languages, algorithms, data structures, memory management, and software engineering principles

Bachelor of Science in Electrical Engineering

Colorado School of Mines, Golden, CO | Graduated May 2008

Professional Engineer (PE) License

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