

# KEVIN KELLY

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## TECHNICAL SKILLS

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**Languages:** C, C++, Python, Verilog, ARM Assembly, x86 Assembly, Java, JavaScript, TypeScript, SQL

**Hardware:** RTL Design, Digital Logic, FPGA/ASIC Verification, PCB Design, Embedded Systems, SoC Integration, RTOS

**Cloud & DevOps:** Linux, Docker, AWS, Cloudflare Workers, CI/CD, NGINX, TCP/IP, DNS, SSL/TLS, VPN, Edge Computing

**Tools & Frameworks:** React.js, Node.js, OpenCV, Git, MongoDB, PostgreSQL, Redis, MATLAB, Jira

## ENGINEERING PROJECTS & PORTFOLIO

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### Encrypted Pipeline Architecture

Oct. 2025 – Present

*Cloud Infrastructure* | Cloudflare Workers, TypeScript, Web Crypto API, Zero-Trust Architecture

- Architected a zero-trust API using TypeScript and Cloudflare Workers, utilizing RSA-OAEP for end-to-end encryption.
- Implemented defense-in-depth security via strict origin validation, token-gating, and custom CORS policies.
- Engineered secure key management logic using PKCS#8 format for performant, memory-safe decryption at the edge.

### High-Availability Home Server Infrastructure

Aug. 2022 – Present

*Systems Administration* | Linux, Docker, Networking

- Maintained a production-grade Unraid server hosting CI/CD pipelines, Dockerized microservices, and automation.
- Configured RAID parity and redundant storage arrays to ensure data integrity and fault tolerance.
- Secured network access via VPN tunneling, reverse proxies (Traefik/NGINX), and local DNS caching.

### Formal Circuit Verification Tool

Aug. 2022 – May 2023

*RTL Verification Engineering (Cadence Design Systems Sponsorship)* | C++, EDA

- Engineered a C++ tool utilizing Tarjan's SCC, Eades approximation, and backtracking algorithms to detect and remove cycles in ASIC/RTL netlists.
- Optimized graph traversal algorithms to eliminate runtime bottlenecks in timing-critical industrial verification flows.

### ARM-Based USB Game Controller

Aug. 2022 – May 2023

*Embedded Product Design* | Embedded C, PCB Design, USB HID

- Designed a custom PCB integrating an ARM Cortex-M microcontroller, dual joysticks, and 12 buttons.
- Led board bring-up and wrote bare-metal Embedded C firmware handling memory-mapped I/O and USB HID.

### Project Management Platform

Aug. 2022 – May 2023

*Full Stack Development* | React, Node.js, MongoDB

- Led full-stack development of a project management tool using React (Frontend) and Node.js (Backend).
- Designed REST APIs and scalable database schemas to support high-volume data transactions.

### Real-Time Facial Expression Recognition

Jan. 2022 – May 2022

*Computer Vision Engineering* | Python, OpenCV, IoT

- Built a real-time computer vision pipeline using OpenCV and Haar cascades to classify emotions in video feeds.
- Integrated detections with IoT triggers to automate smart home actions based on user sentiment.

## PROFESSIONAL EXPERIENCE

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### Audio Visual Supervisor

Sep 2021 – Aug 2023

*The University of Texas at Austin*

Austin, TX

- **Leadership:** Directed a team of 20+ technicians, managing scheduling, workflow delegation, and performance reviews to ensure successful execution of large-scale events.
- **Training & Standards:** Developed technical training curricula for new hires, standardizing safety protocols and equipment procedures to reduce operational errors.
- **Infrastructure Management:** Directed infrastructure upgrades and asset maintenance while serving as the primary liaison for university leadership to resolve real-time logistical escalations.

### Audio Visual Operator

Sep 2019 – Aug 2023

*The University of Texas at Austin*

Austin, TX

- Executed technical operations for high-profile events, adapting to evolving client demands and equipment constraints.
- Troubleshoot hardware signal flows and audio systems in real-time to maintain service continuity.

## EDUCATION

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### Master of Science in Electrical Engineering

August 2026 - May 2028

*The University of Texas at San Antonio*

San Antonio, TX

- **Emphasis:** Artificial Intelligence, Machine Learning, and Cloud Computing.

### Bachelor of Science in Electrical Engineering

August 2019 - May 2023

*The University of Texas at Austin*

Austin, TX

- **Emphasis:** Software Engineering and Design, Embedded Systems, and Requirements Engineering.