

# Zach Howard

## Embedded & C++ Developer | ESP32 Firmware, Audio DSP & IoT

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### SUMMARY

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More than a decade of hands-on work across IT, custom development, QA and DevOps for multiple companies and studios (freelance since 2013).

### SKILLS

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**Embedded:** ESP32, Arduino, C++ firmware, USB serial, TFT touch displays, Raspberry Pi

**Also Used:** Additional languages used in past work and projects: C#, C++, C, PHP, Java

**Languages & Tools:** Python, JavaScript, TypeScript, SQL, REST APIs, Git, GitHub

**Scripting:** Bash and PowerShell scripting

### EXPERIENCE

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#### Owner / IT Services

March 2026 – present

*ZachTech · Oshawa, ON area*

- Founded ZachTech, a local IT services business, and am building its client base.

#### QC Lead

March 2025 – March 2026

*Eterio Realities · Victoria, BC*

- Worked directly with developers to integrate testing and quality practices throughout development.

#### Associate Quality Designer

March 2024 – June 2024

*Electronic Arts · Vancouver, BC*

- Created and maintained QA test passes for Frostbite engine changes and validated new features and workflow changes.

#### QA Specialist, embedded at Electronic Arts

April 2020 – March 2024

*Keywords Studios · Vancouver, BC*

- Embedded QA on the Frostbite Build Tools team, working directly with software engineers on internal developer tools and workflows used across AAA game projects.
- Validated changes to internal build systems and developer workflows and created testing strategies for complex engineering systems.

#### IT Coordinator

September 2018 – April 2020

*Mountain West Studios · Vancouver, BC*

- Developed backend systems for automated video rendering and delivery, and automation for business workflows.

## Product Specialist

January 2016 – August 2018

*Saved By Technology (now Long & McQuade Pro) · Toronto, ON*

- Delivered workshops on audio programming and Max/MSP.

## Earlier roles

- Freelance since 2013: server deployment, database migrations, and custom Max/MSP audio tools for musicians.

## PROJECTS

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- Built AIUsageMonitor (open source, v1.14.1): an ESP32 touchscreen desktop display with C++/Arduino firmware, fed over USB serial by a Python collector, showing AI subscription quotas and live system telemetry.  
[github.com/zdhoward/AIUsageMonitor](https://github.com/zdhoward/AIUsageMonitor)
- Founded ZXAudio ([zxaudio.ca](https://zxaudio.ca)): VST3 audio plugins built in C++ with JUCE, including the PHASE//ZERO phaser, plus open-source DSP and UI component libraries. [zxaudio.ca](https://zxaudio.ca)
- Home network on UniFi gear connecting two Unraid servers, a Raspberry Pi OS host, and other single-board computers and IoT devices.

## EDUCATION

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- Seneca College — Computer Programming & Analysis, 2011 – 2014