# Nathan Kelly

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## Personal Statement

I am a junior developer with a strong interest in embedded systems, low-level programming, and hardware-software integration. After a successful first career as a fine dining head chef, I retrained in audio technology and discovered a passion for software development — particularly C++, Python, and systems programming.

My background gives me a practical, hands-on approach, strong teamwork skills, and the ability to work calmly under pressure. I'm now looking for an opportunity to grow as a software engineer, learn from experienced embedded and hardware specialists, and contribute to real-world products.

## Education

**BSc (Hons) Creative Music Technology – First Class (2020–2023)**
University of the West of England, Bristol
*Accredited by JAMES — Winner of the JAMES Outstanding Achievement Award*

**Key Technical Modules:**
Software Development for Audio · Audio Programming · Creative & Physical Computing · Audio Process Design & Implementation · Audio for Games · Sound Design & Post Production

## Technical Skills

**Programming Languages:**

- C++, Python, C#, JavaScript, MAX/MSP

- Experience writing real-time, low-latency DSP code

- Building synths, audio effects, and education tools

**Embedded & Systems Interests:**

- Microcontrollers (Arduino-based prototyping, small hardware modulation tools)

- Experience breaking down systems into block diagrams and implementing modular architectures
- Curiosity for embedded C, ARM architectures, and FPGA-adjacent workflows

**Audio & DSP Engineering:**

- Signal generation, filtering, and mathematical modelling of discrete audio processes
- Methodical debugging and iterative testing of real-time systems

**Software Development Practices:**

- Object-oriented design and architecture
- UML and visual system diagrams
- Cross-platform development with the **JUCE** framework
- Git version control and collaborative workflows

**Tools & Environments:**

- Linux (user-level), Unity, Unreal, FMOD
- Rapid prototyping in MAX/MSP

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**Relevant Projects**

**C++ Educational Synthesiser Framework (Final-Year Project)**

- Designed and implemented a modular audio synthesis framework in C++ using JUCE
- Created oscillators, envelopes, filters, and UI components
- Focused on real-time performance, clean architecture, and clear DSP documentation

**Microcontroller Experiments**

- Built small hardware-based control sources and modulation tools
- Used Arduino for prototyping timing-critical and sensor-based behaviours
- Developed Python utilities for testing, logging, and data visualization

**Python Tools & Scripts**

- Developed basic utilities for DSP exploration, file processing, and prototyping audio behaviour

- Familiar with Python packages for numerical work and automation

## Professional Experience

### Freelance Sound Designer & Editor (2023–Present)

- Delivered high-quality audio work to strict specifications and deadlines

- Dialogue, music and effects editing, mixing, mastering

- Tracklay and SFX creation for short films; foley recording

- Clear communication with clients and self-management of projects

## Previous Career Skills (from Culinary Industry)

**Teamwork & Communication:** Led teams as a head chef; comfortable collaborating and taking direction.
**Problem-Solving:** Fast, structured approach to unexpected issues under pressure.
**Time Management:** Used to balancing short-term tasks with long-term planning.
**Work Ethic & Resilience:** Strong discipline, calm under load, and thrives in demanding environments.

## Personal Qualities

Curious · Hands-on · Methodical · Reliable · Fast learner · Comfortable learning from mistakes

## Interests

Embedded systems · Low-level programming · Audio synthesis · Hardware tinkering