

James Dónal Cronin

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Electrical engineer who takes hardware from idea to working prototype. Experience across consumer product R&D, neural interface hardware, medical device research, and MV/LV power design, with Python data analysis tying it together.

EXPERIENCE

Senior Electrical Engineer, Advanced Development

Mar 2026 – Present

SharkNinja, Inc. | Needham, MA

- Lead hardware and firmware development for early-stage consumer product concepts, taking ideas from sketch to working bench prototype to give leadership fast, data-backed go/no-go decisions.
- Design and run electrical and thermal characterization, including multi-channel temperature and power logging and sensor response analysis, to define safety and performance margins.
- Develop sensing and control prototypes for new smart-home product concepts, evaluating sensor options and embedded architectures.
- Rapidly prototype on ESP32 and RP2040 (Raspberry Pi Pico) across thermal, time-of-flight, and gesture sensing to prove feasibility before formal development.
- Build custom Python tooling to automate data conversion, visualization, and curve-fitting, shortening test-to-insight turnaround for the wider team.
- Partner with industrial design, firmware, and test teams; advise colleagues on bench power-electronics safety practices.

Hardware Engineer II

Jan 2025 – 2026

Pison Technology Inc. | Boston, MA

- Designed, tested, and integrated electrical systems and hardware modules for Pison's neural interface technology.
- Developed and executed automated test protocols for hardware prototypes, including signal-integrity checks and debugging of electrical subsystems.
- Performed real-time data acquisition and analysis of electrical signals during system bring-up and validation.
- Applied statistical analysis to prototype datasets to uncover trends that informed design optimization and reliability improvements.
- Collaborated with firmware, software, and product teams to resolve hardware issues and improve system performance.

Project Engineer

Nov 2023 – Oct 2024

Gilbane Building Company | Boston, MA

- Supported management of the \$80M HarbourVest project (256,000 SF, 11 floors), coordinating multi-disciplinary teams against tight schedules and budgets.
- Worked with MEP consultants on electrical, mechanical, and plumbing designs; reviewed BIM models for clash detection across disciplines.
- Conducted inspections for NEC and ASHRAE compliance, resolving non-conformances with design engineers and contractors.

Electrical Engineer

Sep 2022 – Oct 2023

Prochem Engineering Ltd | Kilkenny, Ireland

- Delivered MV/LV electrical designs for pharmaceutical and manufacturing facilities using AutoCAD, Revit, and ETAP: schematics, single-line diagrams, and cable schedules.
- Calculated electrical loads and short-circuit capacities to size transformers, switchgear, and circuit breakers; coordinated equipment procurement.
- Designed lighting systems in DIALux to CIBSE standards and developed energy-efficient power distribution layouts.

Research and Development Intern

May 2021 – Sep 2022

Institute of Image-Guided Surgery (IHU) | Strasbourg, France

- Built a fully functional out-of-scale GI tract prototype and its accompanying Android app for the FLUX project; tested and validated the design.
- Explored sensor integration techniques and presented results to cross-functional teams, refining the design from feedback.
- Helped draft an EU Call for Tender proposal to secure project funding.

Student Intern

May 2019 – Sep 2019

Flextronics Ltd. | Cork, Ireland

- Worked with engineers on production-line robotics; shadowed specialists in RF and PCB manufacturing and test.

PROJECTS

Jot: handheld AI voice-note device

2026

Personal project

- Push-to-talk device on the XIAO nRF52840 Sense that streams voice over BLE to an iPhone app, which turns notes into reminders and calendar events. Custom PCB (JLCPCB) and 3D-printed case.

TruView: biosignal visualization tool

2025

Hackathon project, Pison Technology

- Built a unified tool for visualizing and analyzing ECG and EMG in real time, with SNR and FFT metrics built into the plots and a streamlined CSV ingestion pipeline.

Neonatal seizure prediction with signal processing and ML

2022

Final-year project, University College Cork | Result: 1H1

- Developed a Python EEG seizure-detection system using FFT and wavelet features; SVM and random forest models achieved 0.98 precision and recall on unseen data.

EDUCATION

B.E. (Hons) Electrical and Electronic Engineering

2018 – 2022

University College Cork | Cork, Ireland

Leaving Certificate: 601/625 points (top 1% nationally)

2012 – 2018

Millstreet Community School | Cork, Ireland

SKILLS

Embedded	ESP32, RP2040, nRF52840, Arduino; BLE; firmware bring-up
Hardware	Thermal and electrical characterization, low-power analog design, ToF/IR/gesture sensing, bench instrumentation, LTSpice
Software	Python (data analysis, tooling, ML), C, C#, MATLAB, Simulink
Design tools	AutoCAD, Revit, ETAP, DIALux
Languages	English (native), German (working proficiency), French (conversational)

INTERESTS AND ACHIEVEMENTS

- Music: All-Ireland Scoraíocht champion; box accordion player.
- Sport: Intermediate Football Championship with Christophers GFC, Boston; UCC J1 soccer team.
- Leadership: Elected Class Representative, UCC Engineering (2018/19).
- Volunteering: Hope Foundation immersion project in Kolkata, India (2016); volunteer work in Sicily and at Fuoridivela Sailing School, Lake Como (2022).