

# Eoghan Collins

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## Professional Summary

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Engineering student (1.1 Hons) building high-impact systems across AI, hardware, and software. Co-founded a Patch startup, developed a WiFi mesh-network for live concussive-impact telemetry with a minimum of 500% competitor range, and built a full-stack power-grid/policy simulator and optimiser running 2.5M policy-years/hour on consumer hardware. Skilled in full-stack dev, embedded systems, and technical leadership. Looking to solve hard problems that matter.

Featured speaker at NDRC Founders Weekend, Patch Demo Day, Cleanergrid Competition, and multiple PorterShed Hackathons.

## Experience

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**Project Lead, GridAI/University of Galway** *November 2024 - Present*

- Developed a first-of-its-kind AI-driven energy policy simulator in Rust, achieving 2.5 million simulation-years per hour on consumer hardware.
- Built from scratch without external frameworks, optimizing for emissions, cost, public opinion, reliability, and planning permission using 500+ research-backed constants.
- Created 25-year grid forecasting system with human-readable weights and transparent decision processes for full interpretability.
- Achieved net negative emissions by 2050 with 100% reliability at €76B total cost—undercutting national projections by €50B.
- Link: [github.com/ETM-Code/eirgrid](https://github.com/ETM-Code/eirgrid)

**Co-Founder and Chief Software Engineer, Patch (ForceField)** *July 2024 - August 2024*

- Selected as 1 of 33 in 2024 Patch Youth Accelerator by Dogpatch Labs, leading business development with co-founders to develop concussive impact detection sensors for sports.
- Developed novel WiFi mesh-network enabling lossless transmission of 6,000 datapoints/second with single-sensor 100m+ range (vs. competitors' 20m BLE range), scaling to 1500m+ for full teams.
- Co-designed sensor hardware and developed data acquisition/analysis software, achieving €35/unit production cost.
- Led 7-week project coordination, receiving positive feedback from players and coaches.
- Presented the project to key stakeholders, including John Collison and Dogpatch Labs.
- For more details visit [eoghancollins.com/technical#ForceField](http://eoghancollins.com/technical#ForceField).

**Operations and Communications Intern, PorterShed** *May 2024 - July 2024*

- Authored blog posts and press releases leading to media coverage in local news stations.
- Managed major events including a GenAI Hackathon (50+ developers) and entrepreneurship workshop (30+ researchers).
- Created a chatbot for hackathon used by 50+ participants.

**Electronics Course Assistant, Youth Academy, University of Galway** *October 2024 - April 2025*

- Directed support for 32 primary students (ages 9–13) across two 6-week Saturday electronics courses.
- Taught electronic circuits, Arduino programming, and robotics while managing classroom operations.

**Peer Leader, CÉIM Peer Assisted Learning, University of Galway** *October 2024 - April 2025*

- Conducted 21 sessions for 52 first-year engineering students, averaging 18 attendees per session.
- Designed student-focused sessions using gamified activities, achieving 2x-5x higher attendance than other groups.

- Delivered 40+ targeted Leaving Cert and University level maths lessons, receiving average 5-star reviews.

## Education

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**University of Galway**, *BEng in Electrical and Electronic Engineering*

*2023 – 2027*

- Finished both 1<sup>st</sup> and 2<sup>nd</sup> Year with First Class Honours (Irish: 1.1 | US: 4.0 GPA), currently in Third Year
- Developed custom binary RF protocol for Lander Project, achieving 600% data throughput improvement.
- Designed, programmed, and built a Nerf-firing robot for robotics competition, achieving 97% in the grading of the components I was responsible for.

## Skills

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### Programming & Development

- **Frontend:** HTML, CSS, JavaScript/TypeScript, React, Next.js
- **Backend:** C++, C, Java, Rust, Python, SQL
- **Technologies:** Arduino, Espressif, ESP-Now, Supabase, GitHub, Fly.io

### Engineering & Hardware

- Circuit design and prototyping using DIYLC and KiCAD (ForceField sensors, coursework)
- Embedded systems programming in C/C++ and Python with hardware-software integration (ForceField sensors, coursework)
- WiFi mesh-network development (ForceField sensors, coursework)
- Custom transmission protocol development (Lander Project, coursework)
- Testing and debugging of complex logical and analogue circuits (ForceField sensors, coursework)

### Leadership & Communication

- Public speaking and stakeholder presentations (Presenting PorterShed Hackathons, ForceField (Dogpatch Labs, John Collison), NDRC Founders Weekend, Cleanergrid Competition, Presentations to Engineering Body)
- Team management and project coordination (ForceField, Youth Academy Courses, Robotics Project, 1<sup>st</sup> Year Design Project)
- Content creation for blogs, press releases, and technical documentation (ForceField, PorterShed, Personal Website)
- Fluent in Spanish

## Distinctions

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- **Winner**, NDRC Founders Weekend (2025)
- **Finalist**, EirGrid Cleanergrid Competition (2025)
- **Black Belt**, Karate (trained 2011-Present)
- **Excellence Scholarship**, University of Galway (2023)
- **625/625 Points**, Leaving Cert (2023)