

Samuel Black - MEng, BEng

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EDUCATION

Dublin City University

Master's degree in Biomedical Engineer

Dublin, Ireland

May 2025

Dublin City University

Bachelor's degree in Biomedical Engineer

Dublin, Ireland

May 2023

SKILLS

- Medical Device Design (CAD, SolidWorks, Creo) - Biomedical Signal Processing - Biomechanics & Biomaterials
- 3D Printing & Prototyping - Programming: MATLAB, Python, R, C++, Java, CRM - Machine Learning in Healthcare
- Regulatory Standards: ISO 13485, FDA Compliance - Clinical Trial Data Analysis

WORK EXPERIENCE

Turmec Teoranta

Lead Design Engineer

Meath, Ireland

May 2024 – Present

- Led multi-million-dollar mechanical systems project from concept to installation, managing a six-person design team.
- Liaised with clients, suppliers, and site teams to align engineering output with commercial objectives and deadlines.
- Created detailed 3D CAD models and fabrication drawings using Creo; ensured compliance with ISO safety standards.

Dublin City University

Biomedical Engineering Intern

Dublin, Ireland

May 2022 – Sept 2022

- Designed and tested gel-filled prismatic lattice structures for biomechanical impact studies using 3D-printed materials.
- Analysed compression test data in MATLAB and contributed to research documentation and peer-reviewed reporting.
- Collaborated with clinical and academic stakeholders to refine protocols for impact testing and materials evaluation.

Causey

Operational Manager

Meath, Ireland

Seasonally, Sept 2019 – Nov 2025

- Supervised 25+ staff nightly during high-capacity events, resolving logistical and personnel issues under pressure.
- Designed and constructed interactive sets, ensuring safety and structural integrity in a fast-paced public setting.
- Developed strong leadership, crisis management, and communication skills in a high-energy, team-based environment.

PROJECTS

Convective PCR Microfluidic Platform

- Engineered a centrifugal “lab-on-a-disc” microfluidic system for pump-free biological sample processing.
- Designed integrated PCR heating zones to enable rapid thermal cycling for diagnostics in low-resource settings.
- Applied thermofluidic modelling and CAD design to support precise temperature control and compact functionality.

Advanced Helmet Liner Development

- Designed bioinspired helmet liners using gel-filled prismatic lattice geometries for energy absorption. Utilised multi-material 3D printing (PLA, PET-G, ABS) to fabricate structurally optimised impact protection prototypes.
- Demonstrated a **46% increase in energy absorption** and improved rotational force mitigation in lab-based testing.

Client Dashboard & CRM Portal Development

- Developed custom web-based client portals using Firebase, Firestore, and Next.js for SMEs in service-based industries.
- Enabled secure file storage, access filtering, and user-specific content delivery to streamline customer interaction.
- Integrated dashboard analytics to support client engagement, dormant lead reactivation, and CRM-driven sales insights.