

Emil Andre Beauseigneur

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EDUCATION

Atlantic Technological University <i>BEng (Hons) in Embedded Systems Design</i>	2025 – Present Donegal, Ireland
Munster Technological University <i>BSc in Applied Physics & Instrumentation (Automation/Control)</i>	2021 – 2025 Cork, Ireland

EXPERIENCE

IMaR Research Centre / Liebherr Cranes <i>Embedded Software Engineer</i>	May 2025 – Aug. 2025 Kerry, Ireland
<ul style="list-style-type: none">Developed a LiDAR based truck positioning prototype achieving ±3 cm alignment accuracy.Programmed Python system logic for live TCP data parsing, filtering, and load state classification.Built scale models and carried out static and dynamic validation trials to assess positioning performance.Presented progress and technical findings in weekly engineering reviews with supervisors and project stakeholders.	

Blackrock Castle Observatory <i>Embedded Systems Intern</i>	Apr. 2025 – May 2025 Cork, Ireland
<ul style="list-style-type: none">Built hardware and software systems for a fully robotic 0.3 m telescope platform.Automated mount, dome, and camera operation using Python, JavaScript, and ASCOM drivers.Implemented weather-dependent safety logic to support reliable unattended observatory operation.Integrated control software with hardware subsystems to improve observatory automation and protection.	

Kerry County Council <i>Beach Lifeguard</i>	May 2022 – Sept. 2024 Kerry, Ireland
<ul style="list-style-type: none">Worked across three summer seasons in a safety-critical public role requiring decision making under pressure.Developed strong communication, teamwork, and situational awareness through rescue and public safety work.	

PROJECTS

Underwater Optical Wireless Communication <i>C, Python, FreeRTOS</i>	2025 – Present
<ul style="list-style-type: none">Designing and modelling an optical communication link in the blue-green region for underwater transmission.Built Beer-Lambert attenuation models in Python to evaluate transmission loss and link feasibility.Developed embedded control logic in C, including bare-metal implementation and FreeRTOS task structures.Investigating signal integrity, receiver behavior, and hardware-software trade-offs for prototype development.	

LiDAR Truck Positioning Prototype <i>Python, Sensors, Signal Filtering</i>	2025
<ul style="list-style-type: none">Developed a sensing and positioning system for truck alignment using LiDAR and live data processing.Applied filtering and validation methods to improve robustness across repeated physical test scenarios.	

Robotic Telescope Automation <i>Python, JavaScript, ASCOM</i>	2025
<ul style="list-style-type: none">Integrated sensors, motion systems, and software control for automated telescope and dome operation.	

TECHNICAL SKILLS

Programming Languages: C (Bare metal), Python, LaTeX, Ladder logic, VHDL
Embedded Systems: Micro controllers, FreeRTOS, ARM Cortex-M, UART, SPI, I2C, BLE, Wi-Fi, RF, AWS, LoRa
Hardware & Engineering: Sensors, LiDAR, HMI, SCADA, Instrumentation, Automation, Firmware, Oscilloscope, Multimeter, Spectrum/Logic analyzer, PID control, TIA, LED Driver, Comparators, ADC, GPIO, P&ID, PLC, I/O list
Tools: Git, Linux, ASCOM, NumPy, Matplotlib, SolidWorks, Tera Term, KiCad, PSoC Creator, LTspice, CAD

CERTIFICATIONS & AWARDS

- Harvard CS50 – Introduction to Computer Science (2025)
- EDUCBA – Embedded Systems using C (2025)
- Northwestern University – Foundations of Robot Motion (2025)
- Listowel RFC Senior Player of the Year (2023)