

PEARCE O'CONNOR

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TECHNICAL SKILLS

CAD & Design Software: SolidWorks (Advanced, CSWP Certified), AutoCAD, Siemens NX, Inventor, Fusion 360, Revit

Simulation & Analysis: ANSYS, SolidWorks Simulation, FEA, Navisworks (Clash Detection)

Programming & Scripting: Python, C#, MATLAB, G-code, Linux, Dynamo, API Development

Manufacturing & Processes: 3D Printing (FDM), PrusaSlicer, OctoPrint, Marlin

Professional Tools: Microsoft Excel, Word, PowerPoint, Project Management

Certifications: CSWP - Mechanical Design (05/2022), OSHA 10-Hour Construction Safety and Health (09/2025)

EDUCATION

Northeastern University, Boston, MA

Sep 2022 – May 2027

Candidate for **Bachelor of Science in Mechanical Engineering and Design** | GPA: 3.34

Relevant Courses: Thermodynamics, Fluid Mechanics, Mechanics, Statics, Material Science, Differential Equations and Linear Algebra, Design Practices and Processes, Design Perspectives

Activities: NEU Bike Club, NU Downhillers, ASME Chapter Northeastern

University College Dublin, Dublin, Ireland

Sep 2022 – Jan 2023

Semester abroad program with Northeastern University (NUin). Completed engineering, physics, and multivariable calculus courses while assisting Engineering & Materials Science Center staff

ENGINEERING PROJECTS

Revit/Navisworks MEP Plugins

Nov 2025

- Developed open-source Revit plugin in C# using COM APIs for automated MEP pipe analysis, calculating total system lengths with elbow counts and generating hierarchical visual tree diagrams with endpoint symbols
- Built Navisworks integration tools for cross-platform geometry transfer and mesh export using OBJ format, demonstrating complete end-to-end BIM automation workflow development

FDM 3D Printer Upgrade & Workflow Automation

Jun 2024

- Engineered custom hardware upgrades for an FDM 3D printer, including extruder mods for automated part removal and continuous printing
- Developed a print automation system using OctoPrint, custom firmware, and PrusaSlicer G-code scripting, reducing manual labor and downtime by over 25%

WORK EXPERIENCE

T.G. Gallagher, Waltham, MA

Sep 2025-Dec 2025

BIM Coop

- Developed 13 custom automation workflows using C# and Visual Studio for Revit plugins and Plant 3D scripts, streamlining repetitive BIM coordination tasks
- Coordinated and produced construction documentation for 20+ commercial refrigeration systems through complete BIM workflow from modeling to shop drawings
- Created detailed 3D MEP models from 2D engineering drawings for critical equipment including boilers, steam traps, pressure vessels, and air handling units
- Self-taught BIM development and construction workflows with zero prior industry experience, rapidly adapting to deliver production-level plugins and automations

American Pool, Islandia, NY

Jun 2019 – Aug 2025

Head Lifeguard / Manager

- Maintained safety protocols for 500+ daily pool visitors, conducting safety inspections and hazard identification
- Performed chemical analysis and water quality testing to comply with health standards and safety regulations
- Demonstrated emergency response capabilities with Red Cross and Nassau County Lifeguard (Grade 1A) certifications
- Collaborated with facility management to implement improved safety procedures and guest experience protocols

LEADERSHIP & VOLUNTEER EXPERIENCE

Roxbury Robotics, Roxbury, MA

Sep 2024

- Taught robotics and engineering design using LEGO robotics with Roxbury Robotics
- Designed a resource-sharing system, ensuring all students stayed engaged despite limited materials
- Improved teamwork, problem-solving, and participation through a collaborative learning approach

First Global, Mbabane, Eswatini (Swaziland)

Oct 2017 – Apr 2018

- Volunteered in assisting and guiding a new robotics club in a Swaziland secondary school
- Taught and helped the club members in planning, building and deploying new robots for an international competition