

Shauna Recto

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Work Experience

Telecommunications/FPGA Researcher
Maynooth University, Co. Kildare

Dec. 2024 - Sept. 2025

- Responsible for collating and implementing research materials for practical use in the areas of optical telecommunications.
 - Implemented Hardware/Software modules to establish gigabit speed communications between computers and FPGAs via Ethernet/SFP, utilizing the AMD RFSoc 4x2 Kit and RGMII interface.
 - Researched and compared different FEC methods and determined preferred methods for large continuous data transfer.
 - Documented the development process, and noted any novel approaches to the implementations for future research and publishing internally.
 - Used Scapy and AMD Vitis/Vivado for implementing modules in C/Verilog/Python, and Wireshark for Packet sniffing/debugging.
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FPGA Developer
mBryonics, Co. Galway

Nov. 2023 - Nov. 2024

- Contributed to the implementation of hardware modules for satellite optical telecommunications.
 - Simulated and developed custom modem systems on the AMD KR260 Robotics Kit (MPSoc Platform) interfacing link-level network protocols.
 - Developed Verilog modules & testbench for hardware instantiation and C/C++ programs to interact and interface with hardware with other devices.
 - Mentored by experienced FPGA and digital verification colleagues in the embedded team to improve state machine workflow and modularizing modem components.
 - Cooperated with the embedded team to optimize implemented system requirements via Agile based processes.
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Electronic Engineering Lab Demonstrator
Maynooth University, Co. Kildare

Oct. 2022 - May 2025

- Headed and taught labs in several modules in the Electronic Engineering Department.
 - Assisted students during labs, answered questions, provided tutorials over previously covered work and clarified present issues.
 - Provided expertise in a wide range of topics such as Python Scripting, Digital Systems, and HDL Development via Verilog, and the following:
 - **Software Engineering:** Git Version Control and development using the RoboÉireann Codebase on an Ubuntu System, UML Design, Agile/Scrum processes.
 - **Object Oriented Programming:** Concepts of Classes & Objects, Inheritance, Polymorphism and Memory Management using C++ implementations.
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Robotics Research Assistant
Maynooth University, Co. Kildare

Sept. 2023 - Dec. 2023

- Assisted in the development and promotion of the Electronic Engineering department's Robotics Lab for student use.
- Configured and initialized computers for student use as part of their study and project usage of robots with ROS, OpenCV, and other development tools on a Ubuntu system environment.
- Maintained and presented robots for promotional material for the university and public events showcasing innovative developments in the robotics space (NAOs, Unitree Go, Turtlebots).
- Documented all the computer, network, and robot configurations for future maintenance and development by the department.

Extra-Curricular

RoboÉireann

Feb. 2022 - July 2025

Maynooth University - 2nd Salvador '25, 3rd Eindhoven '24, 1st Lower Div. Bordeaux '23, 3rd German Open '22

- Represented Ireland on an international stage and competed against other teams in the RoboCup Standard Platform League (now succeeded by Human Soccer League), and the German Open.
- Kept infrastructure in check on team repositories and trained new members to interact and handle robots on the team, hardware setup, as well as refereeing for games and public demonstrations.
- Developed a realtime ML whistle detection module for interacting with a human referee mid game, directly interfacing the ALSA audio buffers, and performing frequency analysis through FFTW.
- Implemented the framework for Gesture Detection to determine non-network communicated game state changes, optimized for low-end hardware to detect gestures of human referees on the pitch.
- Extensive use of Linux, ALSA, and the RoboÉireann Codebase for programming robots; Keras, Tensorflow, Python/Bash for machine learning (Computer Vision, Audio Signal Processing); Catch2 for unit testing.

Education

Maynooth University

Oct. 2019 - Nov. 2023

BEng. Electronic Engineering with Telecommunications