Adam Herrmann

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PROFILE

Jack of all trades Systems Engineer with a passion for solving hard problems. I am passionate about Model Based Systems Engineering and am an expert in system modelling using Matlab, Simulink, Python, and Modern C++ with SystemC. I have owned several models for various ASIC programmes, from three generations of Intel's NPU Engine to high-speed optical modems for LEO satellites. For the latter, I was involved in all aspects of the product lifecycle, from architecture through to tape-out, owning Calibration Algorithm Development (Embedded Firmware), Matlab/Simulink Modelling (HDL Coder/Verifier) and Cyberhardening Strategy. I am a certified Project Management Professional (PMP) and have two patents pending with the US Patents Office relating to novel calibration algorithm implementations for optical modems.

TECHNICAL SKILLS

Programming Languages: MATLAB, C++, SystemC, Python, Rust.

Tools/Flows: MATLAB, Simulink, HDL Coder/Verifier, Embedded Coder, CMake, Visual Studio, Git, Bash, Jira, Model Based Design, Software/Hardware-in-the-Loop.

Soft Skills: Agile Scrum, Project Management **(PMP certified)**, Mentoring, Team Development.

EXPERIENCE

ALTERA, Remote, Ireland

- **Systems Engineer** Jun 2022 – Present
  - Leading the Matlab/Simulink System Modelling team, modelling all aspects of our reconfigurable system including Optical (MZM, 90 hybrid, optical wave-guides and switches), Electrical, Channel, Digital, and Firmware.
  - Championing the Shift-Left, Automate-Right philosophy with Matlab Toolboxes like Embedded Coder, HDL Coder, and HDL Verifier. Represented Altera at Mathworks Advisory Board 2025.
  - Leading DSP calibration algorithm architecture, design, and firmware implementation to ensure system performance and reliability with varying environmental and operational impairments.
  - Conducting FPGA-based cybersecurity investigations to enhance system resilience in mission-critical applications.
  - Contributing to international working group meetings to define interoperability standards.
  - Presenting progress and results to key stakeholders, including government agencies and research institutions.

    These efforts have contributed to securing multimillion-dollar funding for advanced communication programs and driving innovation in next-generation satellite communications and beyond.

Intel Corporation, Leixlip, Co. Kildare, Ireland

- **C++ Modelling Engineer** (Deep Learning Inference Architecture) Jun 2017 – Jun 2022
  - Team Lead/Product Owner after two years: Leading the Agile Transformation by being the first modelling team to use a Scrum based approach for task planning and management. Actively giving training to other modelling teams on Scrum practices and Jira.
  - Actively leading and developing modern and performant C++/SystemC models for integration in both RTL verification and software virtual platform environments. These models allow embedded software teams to test their software prior to FPGA deployed RTL being available.
  - Co-authored a SNUG (Synopsys Users Group) Conference Paper detailing a novel use of the TLM-2.0 (Transaction Level Modelling) framework for RTL verification. Available here: https://www.synopsys.com/news/pubs/snug/2020/europe/jordan-herrmann-paper.pdf
  - Performed architectural performance exploration and in-depth comparative analysis with alternative designs using C++/SystemC models. These lower level models are developed either from a high level architectural specification or a Python/MATLAB model.
  - Headed the adoption of a common CMake/VSCode/CI development system across the modelling team to enable a greater level of cross team collaboration.

- **Design Automcation Engineer (Internship)** Jan 2016 – Aug 2016
  - Provided 24/7 infrastructure support (engineering compute and CAD tools) for a team of approx. 150 engineers, during a critical tape-in period.
  - Provided training classes on Unix and Git to new-hires after four months.

EDUCATION

Professional Development

- Space Programme Management May 2025
- Winning European Space Agency Proposals Nov 2024
- Project Management (PMP) - UCD Professional Academy Jul 2021 – Oct 2021
- Advanced Real-Time C++ - Feabhas Apr 2020
- Practical Deep Learning - Doulos Jan 2019

University College Dublin, Belfield, Dublin, Ireland

- **M.E. in Electronic & Computer Engineering** Sep 2015 – May 2017
  - First Class Honours - S3 Group EGA Gold Medal for coming first in class.
  - Relevant Modules: Software Engineering (A+), Modelling Simulation (A+), Distributed Optimisation & Control over Networks (A+), Unix Programming (A+).
  - **Final Year Project** (Grade Achieved: A): A Situational Aware In-Car System to Protect Cyclists.
    Developed a smart in-car system to detect and protect cyclists from both collisions and pollution caused by motor-cars, utilising the energy actuation abilities of hybrid vehicles. Solution comprised of a mobile client application to alert the driver of the cyclist's presence and to collect real-time driving data; as well as a Java/Python server placed in the rear of a Toyota Prius to handle data from the antenna at the rear of the car and to simulate the presence of other cars in the area to generate a pollution model. Data driven Model Based Design was used to develop in-car system to analyse antenna data. Video showing Hardware-in-the-Loop demo of system available here: http://ucd.adamherrmann.ie/me_thesis. Paper published in IEEE Transactions on Intelligent Transportation Systems https://ieeexplore.ieee.org/document/8293816.
- **B.Sc. in Engineering Science (Electronic)** Sep 2012 – May 2015
  - First Class Honours.
  - UCD Entrance Scholar for achieving 580/625 Points in the Leaving Certificate (top 3% nationally).
  - Highest Ranked Robot in the UCD RoboRugby Team Competition (Part of the Robotics Design Project module).

PUBLICATIONS

Matlab EXPO Nov 2025

Model Once, Deploy Anywhere: HDL and Embedded Coder Applied to Free Space Optics

SNUG Europe May 2020

Enabling Faster Debug by Seamlessly Integrating SystemC Models into a UVM TB

IEEE Transactions on Intelligent Transportation Systems Feb 2018

A New Take on Protecting Cyclists in Smart Cities

PATENTS

US20250219735A1 - Filed Dec 27, 2023

In-field droop measurement and compensation for coherent optical transceiver

US20240146416A1 - Filed Nov 2, 2022

Method and apparatus for enhancement of common mode rejection on coherent optic receivers

INTERESTS

Aviation, Swimming, and Stand-up/Improv.