
Full stack software engineer focused on climate, energy and environmental applications.

EDUCATION

Full Stack Software Development - Diploma 2018 - 2019
The Code Institute, Ireland *First Class Honours, 1.1*

Energy Engineering - Hon. Bachelor Degree 2008 - 2012
University College Cork, Ireland *Second Class Honours, 2.1*

Leaving Certificate - End of School Exam 2003 - 2008
St. Brendan's College, Killarney, Co. Kerry, Ireland *540/ 600 points*

SKILLS & TECHNOLOGIES

- **Web-Frameworks** - Django, Flask, Dash, Spring, AngularJS
- **Programming** - Python, Java, C, JavaScript, CSS, SASS, HTML5
- **OS's** - Linux Ubuntu, iOS, Windows
- **Industrial Automation** - SCADA and PLC electrical control systems
- **Prototyping** - RaspberryPi and Arduino wireless controllers
- **Data Analysis & Visualisation** - Pandas, Plotly, D3, OpenStreetMaps, GIS
- **DevOps** - AWS EC2, Heroku, Docker, Virtualbox, Jenkins, TravisCI, Grafana
- **Version Control** - Git, Github, SmartSVN
- **Energy Systems** - Tidal, Wind, Gas & Biomass generators
- **Project Documentation** - specifications, scopes of work, risk assessments

EXPERIENCE

Full Stack Software Engineer *Nov 2019 - Present (2 years)*
MaREI Centre for Energy, Climate and Marine, University College Cork, Ireland
End-to-end software development supporting the delivery of climate adaptation and mitigation projects through technology and data.

- **Developed '[Ireland's Climate Status Tool](#)'** (Python Flask/Dash, NGINX, Plotly, Pandas, Docker, AWS EC2), digitising 'Ireland's Climate Status Report' to explore 50 essential climate variables using interactive time-series charts and maps.
- **Developed online e-learning platform** (Tutor/OpenEdx, Python, Django, Docker, MySQL, AWS EC2) for delivering courses on climate action for Irish audience.
- **Co-authored 'Local Authorities Raising Awareness'** online course currently being rolled out to 20'000 local authority staff, with interactive charts and graphics. Featured at the Royal Irish Academy symposium - 'Better together: knowledge co-production for a sustainable society'.
- **Operate and support all e-learning activity**, including all enrollments and user technical support queries for application with 4000 monthly users.
- **Migrating applications to AWS EC2** from ICHEC managed servers, containerising applications and developing new deployment strategies in the process.
- **Support the maintenance** of the Climate Ireland's core website (Java Spring, AngularJS, PostgreSQL).
- **Set up monitoring** (Google Analytics, InfluxDB, Grafana) for running applications.

Software Engineer *May 2019 - Present (2 years 6 months)*
Freelance, dancasey.ie

- **Traffic System Fault Logging Application** - Dashboard application logging all traffic light faults for Irish local authority (Python Dash, RaspberryPi).
- **Complete IoT Prototype** - Developed event driven IoT system from concept to prototype (Python Django, Heroku, wemos D1 mini ESP32, REST).

Personnel Development Aug 2018 - Oct 2019 (14 months)

Furthered my education focused on developing technical web development skills to develop technologies for sustainable and environmental applications.

- Completed **Full Stack Development Diploma** online through The Code Institute..
- Completed **Start Your Own Business** course offered by Kerry Local Enterprise. Learned about business plan preparation, marketing, finances and tax requirements.
- Participated in the **EY Young Entrepreneur** competition. Prepared business plan and pitched business combining automation experience with web-app development.
- Set up **Sole Trading** enterprise, engaged with potential clients in the Energy, Environmental and Brewery sectors, discussing digitisation of their businesses.
- Worked on personnel software projects, relating to my interests in energy and the environment including:
 - [Environmental Consulting App](#) (Python, Django, GeoDjango, PostgreSQL) for geo-tagging soil samples using mobile device location.
 - [Interactive Irish Energy Balance Dashboard](#) (D3, DC, Python) to explore Ireland's Energy Balance as per the SEAI's Energy in Ireland 2018 report.
 - [Irish Electrical Generation Assets Database](#) (Python, Flask, D3, MongoDB) aggregating data from ESB Networks distribution and Eirgrids transmission networks. Data was cleaned and scraped from several PDFs.
 - [Irish ESB Grid Connection Interactive Dashboard Map](#) (Tableau, Python) using data scraped from ESB PDFs.
 - [Irish Grid Reference Bulk Converter](#) (Python, Flask/Dash) app converting between Irish Grid Reference, XY, and Latitude, Longitude coordinates.

Electrical Automation Test Engineer April 2018 - July 2018 (4 months)

OpenHydro, Greenore, Louth, Ireland

Contract role developing and implementing PLC and SCADA test scripts for tidal energy submersible turbine control centre. Short contract the result of the closure of OpenHydro.

- **SCADA System Design and OPC Addressing** using InTouch System Platform
- **Test Scripts Development** for both hardware and PLC/SCADA software validation
- **Electrical Panel Hardware Configuration and Testing**
- **PLC Modifications** using Phoenix Contact PC Worx

Travel and Non-Technical Work Sept 2015 - March 2018 (2 years 5 months)

Career break to travel, and experience different ways of living and working.

- **Traveled** extensively throughout Europe, India, Nepal, SE-Asia, China, Canada and America.
- **Volunteered** in Nepal clearing earthquake debris with the All Hands group.
- **Sales Associate** in Monods Sports Ski and Climbing Store, Banff, Canada.
- **Cleaner and Maintenance** at the Columbia Icefields Centre, at the base of the retreating Athabasca Glacier, Icefields Parkway, Jasper, Canada.
- **Rope Access & Safety** for maintenance of Skellig UNESCO site and filming of Star Wars with Work@Height, Dingle, Kerry, Ireland.

Electrical Automation Engineer *Jan 2013 – Aug 2015 (2 years and 8 months)*

NeoDyne, Little Island, Cork, Ireland

Worked as part of a small, hands-on team of engineer's, primarily involved in Combined Heat and Power (CHP) plants and power control systems.

- **SCADA UI Development** using Wonderware InTouch
- **Electrical Control Design** from identifying instrumentation requirements designing circuits and control strategies following national standards
- **PLC Programming** primarily using Siemens TIA
- **Installation and Commissioning** of instrumentation, protection relays, energy meters etc. liaising with electricians and fitters in the process
- **Preventative Maintenance** scheduling and facilitating for LV/MV and boiler systems
- **Industrial Communication** configuring Ethernet, Modbus Serial/TCP and OPC
- **Complete System Troubleshooting** both remote and onsite
- **Relevant Sites/Projects:**
 - **DIAGEO Ireland Brewery, Dublin** - Gas Fired CHP
 - **Munster Joinery, Cork** - Waste Wood Biomass CHP
 - **National Sustainable Building Energy Test-Bed, Cork Institute of Technology** - LV Smart-Grid, Gas Fired CHP, Wind Turbine, Thermal Storage, Battery System, Load Bank integrated with third party BMS.

VBA Developer and Tourist Information *June 2012 - Sept 2012 (3 months)*

Destination Killarney, Kerry, Ireland

Between providing information and booking trips for tourists, developed a VBA tool in MSExcel to automate the redemption of online GrabOne vouchers.

Wind Energy Engineer *May 2011 - Sept 2011 (5 months)*

Bord Gais Energy, Cork, Ireland

Student placement working in the Assets Managements Division. Developed VBA tool for organising project documentation, monitored wind farms for effects on birds of prey and completed planning permission documents for environmental monitoring masts.

INTERESTS

Data Science - Regularly attend events organised by Kerry Data Science Meetups

Innovation and Technologies for Sustainability - Attend events and consume media relating to AI, Blockchain, Connected IoT Devices. Build connected Arduino development boards.

Rock Climbing and Mountaineering - Coached university students and Cork Youth Climbing Club. Held numerous roles, including Captain, within the UCC Mountaineering Club. Occasionally work as a walking guide and mountain event marshall.

Mountain Biking - Regularly around local trails.

COURSES AND EVENTS

TH.0 Climate Hackathon - Oct. 2020 - Won the 48hr team competition to design and pitch a technology solution addressing flooding in Scotland.

Visualising Thinking, Learning and Teaching - May 2020 - UCC CIRTL workshop.

Design Thinking Decision Jam - April 2020 - Design Innovation Kerry workshop.

High Performance Computing and Parallel Programming - May 2020 - Course provided by ICHEC.

C Programming: Modular Programming and Memory Management - Ongoing - Dartmouth and IMT certified Edx course.

Linux Basics: Command Line Interface - April 2020 - Dartmouth and IMT certified Edx course covering Linux file system and command line interface.

BeyondIoT Conference - January 2020 - conference on Internet of Things and deep technologies.

Science@Sea CPD- April 2019 - Multidisciplinary marine science onboard Celtic Voyager.

Remote and Emergency Care Level 5 - June 218 - Expedition level remote first aid.

