Ryan Gilmour MEng

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Education

2014 – 2019 M.Eng Electrical Engineering w/ Renewable Energy (1st), The University of Edinburgh

Key Skills

- Strong understanding of energy systems
- Power systems analysis and distribution planning
- Local energy system simulation and analysis
- Python development and unit testing
- Verbal and written communication
- Time-series simulations using numerical methods
- Database interactions using SQL and ORMs
- Agile software development

Software Experience

GridLAB-D; HELICS; Python (e.g. numpy, requests, pytest, sklearn); Docker; Kubernetes (RKE2); SQL (Postgres, TimescaleDB), Git (GitHub/GitLab); CI/CD Pipelines; Linux & Windows; AWS; REST APIs; Kafka

Employment

Jan 2023 – Present GE Vernova – Solutions Specialist

I work as part of the services delivery team to deliver highly-available DERMS grid management software to utilities across the world. I work through all of the project phases from design and implementation through to customer Go-Live. This requires a broad understanding of customer cyber-security, networking and power systems modelling experience. My key contributions are:

Project Delivery

- Leading all technical aspects of a vehicle-to-grid (V2G) impact study, using the GE Simulation module to study a client's network when deploying electric vehicles (EVs) with and without optimal control.
- Creating, documenting, and performing test cases on the GE Forecasting module: using Machine Learning algorithms to train models and testing the product's scalability (using Kubernetes).
- Being the subject matter expert across Forecasting, Simulation and Gateway modules and interfacing with the relevant product teams to influence product development to support customer use cases.

Software Development

- Developing a custom Python microservice to extend the GE Forecasting product to integrate with customer REST APIs to ingest live and historic Solar PV measurement data.
- Defining agile working processes for a new Services Engineering team (8x full time staff).
- Issue estimation, sprint planning and code review using the GitLab toolset.
- Delivering internal technical workshops surrounding EV integration challenges, CIM and REST APIs.
- Acting as a technical interface between developers (Services Engineering) and the Solutions team.

Aug 2021 – Jan 2023 **ZUoS Ltd. – Simulations Lead**

Leading the development of the ZUoS Simulations platform, the core revenue generating product for the company, which designs Smart Local Energy Systems to reach net zero. My role involved engaging with community energy groups to understand their decarbonisation objectives to develop actionable decarbonisation pathways. I led the technical team to simulate these pathways to understand in detail the economic, environmental, and network-level impacts of control techniques and low-carbon technology deployment scenarios. My key contributions were:

Project Delivery

- Leading all aspects of the technical delivery for the Scottish Power Energy Networks (SPEN) 'Level-Up' project which investigates how low carbon technologies can reduce peak demands on the LV network.
- Creating a digital twin of the Scottish and Southern Energy Networks (SSEN) network using GIS data and network planning input data.
- Providing demonstrations of ZUoS Simulations to prospective clients including network operators and energy suppliers.
- Communicating project progress to clients and colleagues via presentations and written reports.

Software Development

- Collaborating to define the systems architecture and product use cases for the simulations tool.
- Issue estimation, sprint planning and code review using the GitHub toolset.
- Co-developing the core optimization module for ZUoS alongside academic researchers (using Pyomo).
- Developing a diversity module to support running probabilistic Monte Carlo simulations.
- Providing engineering input and documentation for physical energy asset modelling.
- Designing and implementing database schemas for time series simulation results using SQLAlchemy.
- Developing models of energy demand and user preferences from trial datasets using machine learning methods across heat, transport and power.

Jan 2018 – Jan 2023 **Scene Connect Ltd. – Electrical Engineer**

Working as part of a small team supporting community energy groups all the way from feasibility study to build out of renewable energy assets. This included grid connection studies for Solar PV, Wind and Battery Energy storage as well as geospatial mapping and energy modelling. My role involved delivering technical and non-technical reports and presentations across innovation projects and engineering consultancy engagements.

Volunteering

Volunteer at Code Club Aotearoa (Current)

Running a workshop with 1h per week to support young people aged 8-12 in learning basic programming using Scratch and micro-bits.

Volunteer with the Scouts (2011-2014; 2018)

Volunteering across the Beavers, Cubs and Scouts (ages 6-16) teaching young people practical outdoor skills.

Outdoor Specialist at Camp America (2015)

Volunteering in a team of 6 people to teach young people outdoor skills at a summer camp in Massachusetts.

Hobbies

Playing hockey, rock climbing, hill walking, camping, cooking, travelling.