

# ANJUKAN KATHIRGAMANATHAN

## PhD, Senior Quant and Machine Learning Engineer

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## EXPERIENCE

### Senior Quant and Machine Learning Engineer

#### Sympower

Sept 2025 - Ongoing    Dublin, Ireland

- Focussed on supporting the development and evolution of the Sym-power Multi-Market Optimisation (MMO) offering for battery assets in the Nordic region
- Take ownership of implementing production-worthy, scalable machine learning models, with a focus on forecasting, optimisation and trading strategies use cases.
- Conduct quantitative research and backtesting to demonstrate the value of forecasting, trading signal generation, and optimisation models to business stakeholders.
- Develop batch and streaming machine learning pipelines with the full Databricks stack, with a strong focus on software engineering best practices.

### Senior Data Scientist

#### GridBeyond

Feb 2022 - Aug 2025    Dublin, Ireland

- Lead data scientist for FoTm battery energy storage trading cockpit development for IE, UK and ERCOT (Texas, US) markets. Involved heavily in designing architecture of the products.
- Design and development of AI/machine learning forecasters for market prices (day-ahead, intraday, balancing mechanism/real-time, ancillary services) and ancillary service deployments
- Design and development of optimisation software providing data-driven trading recommendations
- Good understanding of market design and regulations for IE, UK and ERCOT markets.
- Design and development of market simulation/backcast engines for backcasting forecasting and trading performance
- Experience productising software on Microsoft Azure ecosystem and use of AzureML for MLOps
- High-level of customer and stakeholder engagement experience, involved in Series C funding round investor and customer sales calls giving demos of product and outlining data science value add
- Team player working with both onshore and offshore teams cross-functionally along with working with third party vendors

### Data Scientist

#### GridBeyond

Feb 2021 - Jan 2022    Dublin, Ireland

- Developed load forecasters for various manufacturing and industrial customers
- Development of sizing and dispatch optimisation models for batteries at industrial customers
- Developed PyPSA models for techno-economic modelling of micro-grids

## PROUD OF

- 🏆 Guest Speaker on Hypercube Podcast Reinforcement Learning in the Energy Sector
- 🏆 Climate Reality Leadership Corp 2020
- 🏆 World Economic Forum Global Shaper Member of Dublin Hub
- 🏆 Universitas-21 PhD Travel Award 2019 Allowed exchange in NUS, Singapore
- 🏆 ESIPP PhD Scholarship Awarded by University College Dublin
- 🏆 Rotary Young Leaders Award (RYLA) 2015
- 🏆 Senior Scholar Award University of Auckland
- 🏆 Faculty of Engineering Dean's Honours List 2009, 2010 and 2011, University of Auckland
- 🏆 Senior Prize in Mechanical Engineering 2009 and 2010, University of Auckland
- 🏆 Annual Prize for Top Student in Mechanical Engineering 2009, University of Auckland
- 🏆 Faculty of Engineering Undergraduate Scholarship 2009, The University of Auckland
- 🏆 Jubilee Scholarship 2008, The University of Auckland
- 🏆 Dux 2008, Selwyn College, Auckland, New Zealand

## Stress Engineer

### AIMAltitude

Feb 2012 – Nov 2016

Auckland, New Zealand

- Structural substantiation of aircraft interior cabin monuments using FEA and hand calculations.
- Preparing structural substantiation reports for interface loads generation, stress analysis and structural testing.
- Mentoring and leading a team of junior engineers within projects

## EDUCATION

### PGDip in Business and Management

#### Queen's University Belfast

Mar 2021 – Mar 2022

Course delivered by the William J Clinton Leadership Institute. Passed with commendations.

### PhD in Engineering

#### University College Dublin

Jan 2017 – Dec 2020

Thesis title: "Unlocking Energy Flexibility in Commercial Buildings through Data-Driven Techniques"

- Guest lecturer at University of Jaffna for "Society and the Engineer" module
- Involved with International Energy Agency (IEA) **EBC Annex 81 - Data-driven Smart Buildings**
- Involved with International Energy Agency (IEA) **EBC Annex 67 - Energy Flexible Buildings**
- Ranked 2nd in **CityLearn Challenge** for Reinforcement Learning applied to District Demand Side Management
- Completed Professional Diploma in Data Science (Unofficial)
- Completed **Climate-KIC Journey** Summer School 2019
- Knowledge Transfer (KT) Scouts Initiative 2019 (UCD)
- Participated in InnovationAcademy@ESB Programme

### BE(Hons) in Mechanical Engineering

#### University of Auckland

Jan 2008 – Jan 2012

- Achieved a GPA of more than 8.875 out of 9
- Received the Senior Scholar award.

## PUBLICATIONS

### Journal Papers (Select)

- Kathirgamanathan, Anjukan, Eleni Mangina, and Donal P. Finn (2021). "Development of a Soft Actor Critic deep reinforcement learning approach for harnessing energy flexibility in a Large Office building". In: *Energy and AI* 5, January 2021, p. 110120. ISSN: 2666-5468. DOI: [10.1016/j.egyai.2021.100101](https://doi.org/10.1016/j.egyai.2021.100101).
- Kathirgamanathan, Anjukan, Mattia De Rosa, et al. (2020). "Data-driven Predictive Control for Unlocking Building Energy Flexibility: A Review". In: *Renewable and Sustainable Energy Reviews* 135, January 2021, p. 110120. ISSN: 1364-0321. DOI: [10.1016/j.rser.2020.110120](https://doi.org/10.1016/j.rser.2020.110120).

## STRENGTHS

- Machine Learning
- Forecasting
- Reinforcement Learning
- Python - NumPy, Sklearn, Tensorflow
- Python - PyTorch, Pandas
- Optimisation - LP, MILP, MINLP
- Data Viz/Dashboarding
- Data Engineering
- Azure DevOps & AzureML
- Docker
- Website Development
- Funding/Grant Application Preparation
- Event Management
- Building Energy Simulation (EP & DB)

## LANGUAGES

- English ●●●●●
- Tamil ●●●●●
- French ●●●●●
- Python ●●●●●
- SQL ●●●●●
- R ●●●●●
- Bash ●●●●●
- Git ●●●●●

## REFEREES

### Brian Gahan

@ CTO, EasyGo

✉ [bpgahan@gmail.com](mailto:bpgahan@gmail.com)

Dublin, Ireland

### Prof. Donal Finn

@ School of Mechanical and Materials Engineering, University College Dublin

✉ [donal.finn@ucd.ie](mailto:donal.finn@ucd.ie)

Dublin, Ireland

### Dr Prageeth Jayathissa

@ Sustainability Partner, Vector

✉ [Prageeth.Jayathissa@vector.co.nz](mailto:Prageeth.Jayathissa@vector.co.nz)

Auckland, New Zealand

- Kathirgamanathan, Anjukan, Thibault Péan, et al. (2020). "Towards standardising market-independent indicators for quantifying energy flexibility in buildings". In: *Energy and Buildings* 220, p. 110027. ISSN: 0378-7788. DOI: <https://doi.org/10.1016/j.enbuild.2020.110027>. ➡.
- Miller, C. et al. (2020). "The Building Data Genome Project 2, energy meter data from the ASHRAE Great Energy Predictor III competition". In: *Scientific Data* 7.1. ISSN: 20524463. DOI: 10.1038/s41597-020-00712-x.

## Conference Proceedings (Select)

- Kathirgamanathan, Anjukan, Mattia De Rosa, et al. (2019). "Feature Assessment in Data-driven Models for unlocking Building Energy Flexibility". In: *IBPSA BS 2019. 2-4 September, 2019, Rome, Italy*. Rome. ➡.

## VOLUNTEER EXPERIENCE

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### Leadership Network Member

#### Asia New Zealand Foundation


 July 2016 – Ongoing

- Global professional network focused on developing and maintaining strong links between Asia and New Zealand. Attended the following events:
  - Part of delegation visiting Taiwan to develop links between New Zealand Taiwan
  - **South India Hui** - Part of delegation visiting South India to develop links between New Zealand and India
  - Sustainability Hui

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### President

#### Auckland Tamil Sports Club

 May 2015 – May 2016

 Auckland, New Zealand

- Lead a community sports club of approximately 150 members with the following achievements:
  - Increased family membership by 28% from the previous year
  - Prepared funding proposals for grant agencies and had a 100% success rate receiving over \$17000 for use in community projects and showing accountability for this