

## MADELINE LUI

madelinewylui@gmail.com   Portfolio   LinkedIn   GitHub

SUMMARY

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With 4 years of experience in data analysis, I possess strong coding and statistical skills. My biggest achievement is improving a photovoltaics time-series forecast model by more than 20%.

SKILLS

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Python, R, MATLAB, Statistical Methods, Data Visualisation

PROJECTS

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**Wind energy analysis**

Ongoing

- **Aim:** Evaluate the independent variables that better predict wind active power and conduct an exploration analysis from a wind turbine's SCADA system in Turkey.
- **Skills used:** Python, Time-series Forecasting, Data Visualisation.

**Solar time-series forecast**

2024

- **Aim:** Analyse the performance and energy yield of two solar panels in India across 35 days, and evaluate the best independent variables to predict power output.
- **Result:**
  - Conducted an exploration analysis on sensors and panels to identify a 97% conversion efficiency and 12% performance ratio for data-driven recommendations on equipment maintenance.
  - Evaluated model performance of forecasting power output on 3 machine learning models, before implementing the XGBoost model on the variables Time, Module Temperature and Irradiation to improve performance by more than 20%.
- **Skills used:** Python, Time-series Forecasting, XGBoost, Data Visualisation.

EXPERIENCE

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**Muckli Lab, University of Glasgow**

2023—2024

Undergraduate Research Assistant

- Developed an interactive user interface and automated the detection of object occlusions on images from a dataset of >200k images using Python.
- Delivered my thesis project by performing multivariate pattern analysis and bootstrap simulations on 7-T fMRI data using MATLAB.
- **Skills used:** Python, MATLAB, Multivariate Analysis, Multidimensional Matrices, Bootstrap Analysis, Data Wrangling, Programming automation.

EDUCATION

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**University of Glasgow (First Class Honours)**

2020 — 2024

BSc (Hons) Psychology with Neuroscience Specialism

Relevant Modules: Linear algebra, multivariate calculus, probability theory and statistics, R programming.

**United World College Li Po Chun of Hong Kong**

2018 — 2020

Lycée Français International de Hong Kong

2013 — 2018

PROFESSIONAL DEVELOPMENT AND AWARDS

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**MIT open course ware**

Ongoing

- Differential equations course consisting of 30 lectures and assignments.

**International Standard for Photovoltaics System Performance (Edition 2.0 2021)**

2024

- Studied 'Part 1: Monitoring' of the international standard for photovoltaics system performance in my own time.

**BPS Conference Award**

2024

- Dissertation research awarded Best Presentation in cognition and perception at the annual undergraduate conference hosted by the British Psychological Society.

**Concerto Primo Performance Zertifikat (Pianoforte)**

2018

- Awarded by the Vienna Music Examination Board, equivalent to a final year bachelor music student. This qualification was earned from my piano education since age 4, which I've continued playing over the last 18 years.

## VOLUNTEERING

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**Children's Ministry** Hong Kong and Scotland

2019 — 2023

- Led Sunday church programs for children ages 5-12 and weekly meetings with over 10 volunteers.
- Successfully managed last-minute challenges, including stepping-in to lead a team of 4 volunteers and >30 children, and implementing conflict resolution strategies, resulting in an 80% increase in team efficiency during high-pressure situations.
- Coordinated the annual curriculum and delegated responsibilities to a cross-functional team of 6.

## LANGUAGES

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**English**

Native/bilingual

**French**

Full professional proficiency

**Spanish**

Professional proficiency