

# Sophie Martin

PHD STUDENT · UNIVERSITY COLLEGE LONDON

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## Research Interests

I am a PhD student on the i4Health CDT at University College London with an interest in healthcare applications of artificial intelligence. My research focus is on explainable methods and interpretable deep learning in medical imaging. I'm also excited by the use of AI for personalised treatment and enjoy discussions about model bias, fairness and ethics.

## Education

### University College London

PHD IN AI & MEDICAL IMAGING  
MRES IN MEDICAL IMAGING

London  
2021 - Present  
2020 - 2021

### Imperial College London

MSCI IN PHYSICS (2.1, 68%)

London  
2016 - 2020

### St Angela's Ursuline School

A LEVEL: 3A\*'S (MATHS, FURTHER MATHS, PHYSICS) & 1A (HISTORY)  
GCSE: 9A\*'S (INC. MATHS AND ENGLISH LANGUAGE) & 2AS + FMSQ

London  
2014 - 2016  
2009 - 2014

## Work Experience

### Illumina

BIOINFORMATICIAN

- I used Python to build a pipeline that used machine learning to identify tumour-only variants from genetic data.
- Explored feature visualisation/engineering methods and hyperparameter optimisation to improve performance.
- I used the Sun Grid Engine cluster computing framework to submit jobs for batch processing.

Cambridge  
Jul 2019 - Oct 2019

### Open Energi

DATA SCIENTIST

- I contributed to a project to improve asset performance for rapid grid frequency response.
- Code was developed in Python, Git was used to collaborate with other developers and SQL was required to interact with the database.
- I was able to highlight opportunities for business development and presented my findings to the company.

London  
Jul 2018 - Sep 2018

## Projects

### A Network Science Perspective on Signal Propagation in the Brain

MSCI RESEARCH PROJECT

- Supervised by Professor Kim Christensen, I developed a cellular graph network to model excitation spread across structures such as small-world, stochastic model and Barabasi-Albert hub network. This made use of graph theory and criticality analysis.

Imperial College London  
Oct 2019 - May 2020

### Sensitivity Studies of the 5 MeV Distortion at SoLid Utilising Machine Learning

BSC RESEARCH PROJECT

- Supervised by Dr Daniel Saunders, this project evaluated the use machine learning to detect a distortion in the anti-electron neutrino energy spectrum. This signal vs. background problem is highly transferable and was a useful application of statistical data analysis.

Imperial College London  
Oct 2018 - May 2019

## Activities & Responsibilities

### The Blackett Lab Family C.I.C

DIRECTOR OF MEDIA & MARKETING

- I generate social media content, lead website development, and manage communications for the organisation.

London  
Jun 2020 - Present

### Project Partners

BOARD TRUSTEE

- I help facilitate the growth this educational charity by attending meetings and consulting on teaching materials.

London  
Mar 2020 - Present

## Google GetAhead Program

London

PARTICIPANT

Jul 2021 - Sep 2021

- I participated in a 6-week virtual program for selected CS students across EMEA. The program involved technical challenge, YouTube live trainings and interview workshops.

## Awards & Publications

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### AWARDS

2016 **Winner**, Worshipful Company of Coachmakers and Coach Harness Makers' Jaguar Land Rover Bursary

London

### PUBLICATIONS

2021 **Conference Paper**, Development and evaluation of intraoperative ultrasound segmentation with negative image frames and multiple observer labels

ASMUS, MICCAI

## Skills

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**Programming** Python, MatLab, Bash, SQL, Git, LaTeX, Cluster Computing

**Web** HTML5, CSS, Bootstrap 4, Javascript

**General** UK Driving License, English (Native), French (B1)