

# Sofia Gilardini

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## EDUCATION

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### **DPhil Statistics and Machine Learning, StatML CDT, University of Oxford** **2025-2028**

- **Fully-funded Scholarship** for DPhil programme at the Statistics and Machine Learning Centre for Doctoral Training (StatML CDT, EPSRC).
- Joint programme between University of Oxford and Imperial College London.

### **MPhil Machine Learning and Machine Intelligence, University of Cambridge** **2024-25**

- Deep Learning and Structured Data, Probabilistic Machine Learning, Natural Language Processing, Intelligent Interactive Systems, Advanced Human-Computer Interaction.
- MPhil Dissertation: "Self-Supervised Learning for Label-Efficient Biomechanical Analysis"

### **Exchange Year, University of California Los Angeles (UCLA)** **2022-23**

- Relevant courses: Signals and Systems, Neural Signal Processing, Embedded Networked Systems.
- Python, C, C++, Matlab, JavaScript.

### **BEng Hons Electrical and Mechanical Engineering, The University of Edinburgh** **2020-24**

- Graduated with high First Class Honors, award received for highest-scoring dissertation in cohort.
- Relevant courses: Data Analysis & ML, Control Theory, Circuit Theory, Digital System Design.

### **A Levels, Runnymede College, Madrid** **2018-20**

- A Levels: A\* Physics, A\* Mathematics, A\* History.

## PROFESSIONAL AND RESEARCH EXPERIENCE

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### **Machine Learning Data Engineer (AC) , Apple** **March - August 2025**

Developed automation frameworks, ML pipelines, and robotics-based solutions for a computer vision algorithm team working on new iOS features. Combined practical software engineering with hands-on, lab-based experimentation, bridging algorithm development with deployment testing. Part-time role during MPhil studies at the University of Cambridge.

### **MPhil Thesis, University of Cambridge** **May-August 2025**

*'Self-Supervised Representation Learning of IMU Data for Label-Efficient Biomechanical Analysis'*. Developed and evaluated self-supervised methods for joint-angle estimation from wearable IMU data using self-supervised pretraining and minimal labelled data. Implemented full pipeline in PyTorch, with systematic evaluation across multiple neural architectures and experimental settings. *Distinction awarded.*

### **BEng Thesis, University of Edinburgh** **February-June 2024**

*"Continuous Decoding of Hand Joint States Using Electromyography Data"*. Investigation of dimensionality reduction techniques for regression of hand joint states for prosthetic control. *Award received for highest-scoring dissertation in cohort.*

### **Computational Neuroscience Machine Learning Research, Imperial College London** **June-August 2023**

Applied contrastive learning frameworks to decode movie frames from mouse visual cortex data, developing and fine-tuning neural network architectures for representation learning. Integrated contextual data (e.g., behavioural metrics) to explore the influence on decoder performance and neural dynamics. Collaborated with, and presented work at, the Francis Crick Institute. Supervised by Dr Sadra Sadeh.

### **Robotic Modelling and Control, CMR Surgical** **June-Dec 2021; May-July 2022**

Responsible for the next-generation design of a surgical end-effector, I independently developed and refined dynamic and kinematic models of robotic surgical instruments over two summers and part-time during my studies. Leveraging Matlab, Simulink, and Simscape, I created precise system representations that formed the foundation for a proof-of-concept motor control scheme for next-generation surgical instruments.

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**Languages:** Native speaker of English, Spanish and Italian; Conversational French, learning German (2025).

**Other:** Rowing for Clare College Cambridge, Jesus College Oxford. Enjoy swimming, running, kitesurf.