

# Emmanuel Oladokun

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## Summary

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PhD graduate in Engineering Science from the University of Oxford specialising in **deep learning systems and synthetic data generation**. Experience building and iterating on **end-to-end training pipelines**, from data curation and preprocessing to model training and evaluation. Strong background in PyTorch and large-scale datasets, with a focus on **improving model performance through data quality, failure analysis, and iterative experimentation**.

## Work and Research Experience

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### Alan Turing Intern, GCHQ

Jan 2024 – Jul 2024

- Curated and processed **large-scale image datasets (~300k samples)** and built pipelines for training and evaluating generative models.
- Trained and evaluated deep learning models using PyTorch, improving **data quality, robustness, and model performance** through iterative experimentation.
- Analysed model outputs to identify **failure modes and data gaps**, guiding dataset improvements and increasing coverage.
- Built and ran scalable training workflows using **AWS Cloud services (S3, SageMaker, CloudWatch)** for data storage, model training, and experiment monitoring.

### Software Developer & Supervisor, University of Oxford / GE HealthCare

Oct 2020 – Jun 2022

- Co-developed and maintained an **open-source tool** for automated validation of DICOM images, improving **data quality** within clinical ML pipelines while ensuring privacy compliance. 🐙 [ECIQC](#)
- Led technical design and implementation using both C++ and Python, including setting up **CI/CD pipelines** and automated tests to ensure reliability as the codebase evolved.
- Improved reliability of downstream ML workflows by enforcing **data validation and consistency checks** within large-scale pipelines.
- **Supervised 5 PhD students**, mentoring on software development practices and contributing to key project deliverables.

### Master's Thesis Research, University of Oxford

Oct 2019 – Jun 2020

- Used Python and MATLAB to develop mathematical and statistical models for the circadian blood pressure rhythm.
- Managed and performed statistical analysis on noisy data consisting of **4M records** from **208,948** hospital admissions.
- Delivered an independent research project under academic supervision within strict deadlines, achieving a **First Class Grade**.

### Software Engineering Intern, Schlumberger

Jul 2019 – Sep 2019

- **Reduced computational costs by 30–50%** within a production reservoir simulator by using machine learning models.
- Successfully developed machine learning models using Scikit-Learn and TensorFlow.
- Swiftly adapted to a new **high-pressure environment**. Findings of this internship have led to a publication.

### Undergraduate Research Assistant, University of Oxford

Jul 2018 – Sep 2018

- Researched Offshore Renewable Energy by modelling wind turbine dynamics as ODEs and solving them in MATLAB.
- Tackled challenges such as performing experiments using the **UK's largest functioning wave tank**.

## Achievements

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### First-author Publications

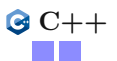
- EchoLVFM: One-Step Video Generation via Latent Flow Matching for Echocardiogram Synthesis; (2026); 🐙 [EchoLVFM](#)  
Flow Matching; Video Generation; **GenAI**; 🔄, 🧠
- From Transthoracic to Transesophageal: Cross-Modality Generation using LoRA Diffusion; MICCAI-ASMUS (2025).  
**Best Paper Award**; Diffusion Models; Cross-Modality Learning; Parameter-Efficient Fine-Tuning; 🔄, 🧠, 🌐  
[Proprietary](#)
- Transesophageal Echocardiography Generation using Anatomical Models; MICCAI-DALI (2023).  
Generative Adversarial Networks; Contrastive Unpaired Translation; Synthetic Data; 🔄, 🌐 [Proprietary](#)
- Machine-Learning Informed Prediction of Linear Solver Tolerance for Non-Linear Solution Methods in Numerical Simulation;  
ECMOR XVII (2020).  
Random Forest Regression; Linear Algebra; 📈, 🌐 [Proprietary](#)

## Awards

- 🏆 **OxAI Hackathon (Mar 2026)**: Co-developed a prototype using transfer learning to estimate visceral fat proxies from facial imagery; built an end-to-end multimodal training pipeline in six hours, earning **3rd place**. 🌐 [Face2Visceral](#)
- 🏆 **Best Paper (Sep 2025)**: Awarded 'Best Paper' at ASMUS-MICCAI 2025 for paper addressing diffusion-based image generation using data from multiple domains.
- 🏆 **Google HQ Hackathon (Oct 2019)**: Co-conceived and developed a machine learning-based application to support handwriting learning for people with cerebral palsy and related needs. As a team, refined the concept and delivered a working **prototype in less than 24 hours**, earning **2nd place** out of 12 teams. 🌐 [HandRight](#)
- 🏆 **UKMT Maths Challenge (Nov 2015)**: Awarded a Silver Certificate.

## Skills

### Programming Experience (Years):



**Libraries & Cloud:** 🤖 HuggingFace, 🔥 PyTorch, Torchvision, 📦 NumPy, SciPy; 🍷 AWS, S3, ▲ Vercel.

**Deep Learning Systems:** training pipelines, dataset curation, model evaluation, experiment iteration

**Methods:** Generative modelling, (latent) diffusion models, foundation models, flow matching, representation learning, contrastive learning, vision-language models (e.g., CLIP), transformer architectures, **RAG, synthetic data generation.**

## Education

### DPHil Engineering Science CDT, University of Oxford

(period includes internship) Oct 2020 – March 2026

Since Oct 2021, in collaboration with GE HealthCare, applying **deep generative models** to create **synthetic datasets** for downstream tasks. Developed and trained deep learning models for synthetic data generation, used to augment training datasets and improve downstream task performance. Designed and iterated on **training pipelines**, including data preprocessing, model training, evaluation, and ablation studies. Demonstrated up to a **10% improvement** in model performance by **augmenting and rebalancing skewed real-world datasets with synthetic data** and counterfactuals. Work has produced first-authored publications and **international conference presentations**. Most recently developed a **flow-matching** method for **one-step latent video generation**, including **implementing a custom flash-attention processor**.

### MEng Engineering Science (2:1), University of Oxford

2016 – 2020

Modules include: **Machine Learning** (Generative and Discriminative Models), Optimisation, Advanced Probability, Software Engineering; Medical Imaging and Informatics (**Deep Learning, Computer Vision**), and Image Processing.

## Leadership and Service

### Engineering Tutor, St Peter's College

2022

- Delivered tutorials in Mathematics and Physics to undergraduate engineering students, and assessed problem sheets.

### Volunteer, THRIVE

Nov 2018 – Dec 2022

- Led weekly sports sessions for **50+ children** from deprived communities, mentoring participants while fostering teamwork, discipline, and leadership.

### Alumni Relations Officer, St Peter's College, University of Oxford

Nov 2016 – Jun 2018

- Established strong ties as an ambassador through connecting undergraduates with alumni, and networking with professionals.
- Raised **£5,862** for the college during a telethon and learned protocols for dealing with sensitive and confidential information.

## Interests

**Football:** Played collegiate football including inter-college 'Cuppers' competitions at Oxford; currently play for fun.

**Drumming:** Active drummer, rehearsing independently, corporately, and performing monthly in live services to congregations of up to **200** people.