Adam D. Sturge

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Profile

I am a graduating PhD student in Data Science at the University of Oxford. With 5 years of experience as a Data scientist, working across academia, insurance and finance.

Key skills

- **Programming: Python, R, C, Java, Haskell.**
- **Wearable sensors**
- **Medical devices**
- **Stakeholder management**
- **Deep learning**
- **Software engineering: MLOps, Git, Dev/ops**
- **Time-series**
- **Cloud platforms (AWS, Palantir foundry)**
- **Machine learning**
- **PyTorch**
- **Actuarial Science**
- **Scientific communication**

Education

PhD in Health Data Science (EPSRC CDT), University of Oxford | October 2020-May 2025

- Full scholarship and enhanced stipend (~£100,000 over four years).

BSc (Hons) Computer Science, University of Nottingham | September 2016-July 2020

- First Class Honours, 85% (Ranked 1st out of 180, awarded the School of Computer Science Top Student Award).

Professional Experience

PhD Research in Health Data Science, University of Oxford | October 2020-Present

- Designed scalable deep learning pipelines for medical device data such as ECG to predict incident disease.
- Achieved up to 15% improvement in NRI over current NHS risk tools such as QRISK3 using deep learning models.
- Presented at top international conferences such as ESC, BSC, ICAMPAM

Health Data Science PhD Program Tutor | December 2021-Present

- Taught and mentored incoming PhD students in data science tools and methods at Oxford.

Life & Health R&D Analyst, Swiss Re | Internship: June-August 2024

- Developed LSTM and ARIMA models to forecast mortality in 6 million individuals to guide health interventions.
- Used causal methods such as G-computation to assess differences in mortality between insured and uninsured populations
- Authored scientific reports on medical innovation and regulatory implications in Life & health insurance

Software Application Engineer, Intel Corporation | July 2018- August 2019

- Optimised financial service algorithms (e.g., Black-Scholes, Monte Carlo) using VTune and Intel compiler (ICC) tools, achieving up to a 28× reduction in execution time.
- Managed and maintained high-performance computing (HPC) clusters, including infrastructure maintenance and performance monitoring of 20–40 servers.
- Deployed deep learning models in TensorflowLite on a wearable device to classify movement behaviours in real time.

Technical Skills

- **Programming Languages & Frameworks:** Python, R, SQL, C, Java, Haskell; 5+ years experience with PyTorch, TensorFlow, Scikit-learn, Pandas, and NumPy for ML pipelines
- **Deep/machine learning**: Implemented explainable deep neural networks in PyTorch using time-series data (ECG, accelerometry) for risk prediction, with interpretable SHAP values for feature attributions.
- **Time-Series Forecasting:** Developed long-term mortality forecasts and actuarial models (Lee-Carter, Cox) for over 6 million participants, using R, Python and Spark, contributing to improved healthcare planning.
- **MLOps & Cloud platforms:** Experience applying MLOps practices, including model versioning, experiment tracking, and reproducibility across analysis pipelines using Git and cloud platforms (AWS, Palantir Foundry)
- **Communication skills & stakeholder engagement:** Presented research findings at major scientific conferences; authored a strategic report for Swiss Re on the implications of Alzheimer's disease diagnosis for the Life and Health insurance sector.

Publications

First-author manuscripts

- *Predictive performance of wearable sensors for mortality risk in older adults: a model development and validation study.* **Sturge, AD**, Harper, C et al. 2025 (*medRxiv*. doi.org/10.1101/2025.04.03.25325101).

Research articles (In preparation for submission):

- *Development and validation of an ECG-based 10-year risk prediction model for Major Adverse Cardio/Cerebrovascular Events in UK Biobank*. **Sturge, AD** et al. 2025.
- *The added value of the objectively measured physical activity to the prediction of incident Major Adverse Cardio/Cerebrovascular Events*. **Sturge, AD** et al., 2025.
- *The added value of objectively measured gait to the prediction of Parkinson's disease*. Acquah A, **Sturge, AD** et al.

Industry reports

- Swiss Re. Alzheimer's Disease a growing risk with promising developments Risk

Awards

EPSRC Health Data Science CDT Studentship | September 2020-December 2024

- Full tuition and enhanced stipend (~£100,000 over four years).

University of Nottingham School of Computer Science Top Student Award | July 2020

- Awarded for graduating at the top of my BSc (Hons) cohort.

Undergraduate Exceptional Achievement Award | July 2017, July 2018

- Awarded for completing the academic year within the top 5 of the cohort for overall percentage grade.

Invited Talks

European Society of Cardiology Congress | August 2024

British Cardiovascular Society Annual Conference | June 2024

- Received "Best of the Best" awards for two oral presentations.

International Society for the Measurement of Physical Activity | June 2024

British Heart Foundation Centre for Research Excellence Symposium | November 2023

Additional Skills & Courses

AI & Machine Learning for Healthcare, University of Cambridge | August 2022

- Machine learning of personalised therapeutics and causal deep learning to generate clinical risk scores.

Health Data Science PhD Training Program, University of Oxford | September 2020-October2021

- Received training in software optimisation, Ethical AI and Machine learning.

Max Planck Pre-doctoral School, Emerging Research Trends in Computer Science | August 2019

- Received training in state-of-the-art research in computer science, including data visualisation, secure and dependable systems, machine learning, and programming language design.

Charity & Outreach

Austrian Society Treasurer, University of Oxford | October 2022-October2024

- Managed the society budget and organised social and networking events to strengthen Anglo-Austrian ties.

Technical Lead, Intel Inspire/STEM committee | July 2018-August 2019

- Led STEM outreach initiatives reaching over 1,000 school-aged pupils annually, designing and delivering STEM workshops in computer hardware, programming and AI.

Referees

- Available upon request