Alexandra Sterling

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EDUCATION

- **Imperial College London** — London, UK
  PhD in Computer Science — *Oct. 2018 - Dec. 2022*
  - **Thesis**: "Advanced Machine Learning Approaches for Real-Time Computer Vision in Autonomous Systems"
  - **Supervisor**: Prof. James Richardson, FRS
  - **Awards**: Imperial College President's PhD Scholarship (Full funding), Outstanding Research Achievement Award 2022
  - **Publications**: 12 peer-reviewed papers, 3 first-author publications in Nature Machine Intelligence and ICML
- **University of Cambridge** — Cambridge, UK
  MPhil in Advanced Computer Science — *Oct. 2016 - Jun. 2018*
  - **Distinction**: First Class Honours with Distinction (88%)
  - **Thesis**: "Neural Network Optimization for Edge Computing Applications"
  - **Relevant Coursework**: Machine Learning, Computer Vision, Distributed Systems, Advanced Algorithms
- **University of Oxford** — Oxford, UK
  BA in Computer Science — *Oct. 2013 - Jun. 2016*
  - **Honours**: First Class Honours (90%)
  - **Awards**: Oxford Computing Laboratory Prize for Best Final Year Project
  - **Activities**: President of Oxford Women in Computer Science Society, Captain of University Programming Team

PROFESSIONAL EXPERIENCE

- **DeepMind Technologies** — London, UK
  Senior Research Scientist — *Jan. 2023 - Present*
  - **Research Focus**: Leading research on multimodal AI systems combining computer vision and natural language processing
  - **Key Achievements**: Developed novel attention mechanisms improving model efficiency by 35%, published 4 papers at top-tier venues
  - **Collaboration**: Working closely with Google Brain team on large-scale model deployment
  - **Mentorship**: Supervising 3 PhD interns and 2 postdoctoral researchers
- **Microsoft Research Cambridge** — Cambridge, UK
  Research Intern — *Jun. 2021 - Sep. 2021*
  - **Project**: "Efficient Neural Architecture Search for Mobile Devices"
  - **Impact**: Developed automated neural architecture search pipeline reducing model size by 60% while maintaining accuracy
  - **Publication**: Work accepted at NeurIPS 2021 with 200+ citations
  - **Technology Stack**: PyTorch, Azure ML, ONNX, TensorRT
- **Amazon Web Services** — Dublin, Ireland
  Applied Scientist Intern — *Jun. 2020 - Sep. 2020*
  - **Team**: Amazon SageMaker AutoML
  - **Contribution**: Implemented distributed hyperparameter optimization algorithms for large-scale machine learning workloads
  - **Results**: Improved training time by 40% for customer workloads, integrated into SageMaker production pipeline
  - **Skills**: Python, Scala, Apache Spark, Docker, Kubernetes
- **Google** — Mountain View, CA, USA
  Software Engineering Intern — *Jun. 2019 - Sep. 2019*
  - **Team**: Google Photos Computer Vision
  - **Project**: Developed real-time image enhancement algorithms for mobile photography
  - **Impact**: Features shipped to 1+ billion users, improved photo quality metrics by 25%
  - **Technology**: TensorFlow Lite, C++, Android NDK, OpenCV

ACADEMIC EXPERIENCE

- **Imperial College London** Postdoctoral Research Associate
  Jan. 2023 - Present | London, UK
  Leading research on federated learning for healthcare applications. Collaborating with NHS trusts to develop privacy-preserving machine learning systems for medical imaging analysis. Managing a team of 4 researchers and £2.5M in research funding.

- **University of Cambridge** Teaching Associate
  Oct. 2018 - Dec. 2022 | Cambridge, UK
  Taught undergraduate and graduate courses in Machine Learning, Computer Vision, and Advanced Algorithms. Supervised 12 undergraduate dissertations and 6 MPhil theses. Received "Outstanding Teaching Award" for three consecutive years.

- **Oxford Computing Laboratory** Research Assistant
  Jun. 2015 - Sep. 2016 | Oxford, UK
  Worked with Prof. Sarah Mitchell on distributed computing systems. Contributed to research on consensus algorithms in Byzantine fault-tolerant systems. Co-authored 2 conference papers at PODC and DISC.

SELECTED PUBLICATIONS

- **Nature Machine Intelligence** "Multimodal Federated Learning for Healthcare: Privacy, Efficiency, and Fairness"
  2024 | First Author
  Sterling, A., Chen, L., Patel, R., & Johnson, M. A comprehensive framework for federated learning in sensitive healthcare environments, demonstrating superior performance while maintaining strict privacy guarantees. Impact Factor: 25.4, Citations: 89

- **International Conference on Machine Learning (ICML)** "Efficient Neural Architecture Search via Progressive Pruning"
  2023 | First Author
  Sterling, A., & Richardson, J. Novel approach to neural architecture search reducing computational requirements by 70% while maintaining state-of-the-art performance on ImageNet and COCO datasets. Acceptance Rate: 27.9%, Citations: 156

- **Conference on Neural Information Processing Systems (NeurIPS)** "Adaptive Attention Mechanisms for Resource-Constrained Environments"
  2021 | Co-First Author
  Sterling, A., Kumar, P., & Thompson, D. Breakthrough work on attention mechanisms for mobile and edge computing applications, enabling real-time inference on smartphones. Spotlight Paper, Citations: 234

- **IEEE Conference on Computer Vision and Pattern Recognition (CVPR)** "Real-Time Object Detection with Temporal Consistency"
  2020 | Second Author
  Liu, X., Sterling, A., & Brown, K. Advanced object detection system achieving 60 FPS on standard hardware while maintaining temporal coherence in video streams. Oral Presentation, Citations: 187

AWARDS AND HONORS

2024	International	MIT Technology Review Innovators Under 35
2023	National	Royal Society University Research Fellowship
2022	Imperial College	President's Award for Outstanding PhD Research
2021	NeurIPS	Outstanding Paper Award (Top 0.1% of submissions)
2020	Google	PhD Fellowship in Machine Learning
2019	IEEE	Young Professional Achievement Award
2018	Cambridge	MPhil Thesis Prize for Best Research
2016	Oxford	Computing Laboratory Prize for Final Year Project
2015	ACM	Student Research Competition Winner (SIGMOD)
2014	British Informatics	Olympiad Gold Medal

TECHNICAL SKILLS

- **Programming Languages** Expert Level
  Daily Use
  Python, C++, CUDA, JavaScript, TypeScript, Go, Rust, R, MATLAB, SQL

- **Machine Learning & AI** Frameworks and Tools
  Production Experience
  PyTorch, TensorFlow, JAX, Hugging Face, scikit-learn, OpenCV, ONNX, TensorRT, MLflow, Weights & Biases, Ray, Horovod

- **Cloud & Infrastructure** Platforms and Services
  Enterprise Scale
  AWS (SageMaker, EC2, S3, Lambda), Google Cloud Platform (Vertex AI, Compute Engine), Azure (ML Studio), Docker, Kubernetes, Terraform, Apache Spark, Kafka

- **Web Development** Full Stack Capabilities
  Professional Projects

React, Node.js, Django, FastAPI, PostgreSQL, MongoDB, Redis, GraphQL, RESTful APIs, Microservices Architecture

- **Research Tools** Academic and Industry
  Publication Quality
  LaTeX, Jupyter, Git, Linux, HPC clusters, SLURM, Singularity, Matplotlib, Plotly, D3.js, Tableau

PROFESSIONAL SERVICE

- **Editorial Boards** Journal Reviewer
  2022 - Present
  Reviewer for Nature Machine Intelligence, Journal of Machine Learning Research, IEEE Transactions on Pattern Analysis and Machine Intelligence, Computer Vision and Image Understanding
- **Conference Organization** Program Committee Member
  2021 - Present
  ICML (2023, 2024), NeurIPS (2022, 2023, 2024), ICLR (2023, 2024), CVPR (2022, 2023), ICCV (2023)
- **Professional Societies** Active Membership
  2019 - Present
  IEEE Computer Society, ACM SIGKDD, Association for the Advancement of Artificial Intelligence (AAAI), British Computer Society
- **Industry Advisory** Consulting Roles
  2023 - Present
  Technical advisor for 3 AI startups in London, Member of UK Government AI Safety Advisory Board, Expert witness for IP litigation cases

SELECTED PROJECTS

- **HealthAI Platform** Open-Source Medical AI Framework
  2023 - Present
  Leading development of open-source platform for federated medical AI. 50+ contributors, 2.3k GitHub stars, deployed in 15+ hospitals across Europe. Technologies: Python, PyTorch, Docker, Kubernetes, FHIR.
- **EfficientVision** Mobile Computer Vision Library
  2022 - 2023
  Created optimized computer vision library for mobile devices. Achieved 10x speedup over existing solutions. Downloaded 100k+ times, integrated into major mobile applications. Technologies: C++, TensorFlow Lite, ARM NEON, Metal Performance Shaders.
- **CityFlow Analytics** Smart City Traffic System
  2021 - 2022
  Developed real-time traffic analysis system using computer vision and IoT sensors. Deployed in London pilot program, reduced traffic congestion by 22%. Technologies: Python, Apache Kafka, Redis, PostgreSQL, React, D3.js.
- **Neural Architecture Compiler** Automated ML Pipeline
  2020 - 2021
  Built automated system for neural architecture search and deployment. Reduced model development time from weeks to hours. Used internally at Microsoft Research. Technologies: Python, PyTorch, Docker, Azure, ONNX.

LANGUAGES

English (Native) • French (Fluent - DELF B2) • German (Conversational - Goethe B1) • Mandarin Chinese (Basic - HSK 3) • Spanish (Basic)

CERTIFICATIONS

- **AWS Certified Solutions Architect**: Professional Level (2023)
- **Google Cloud Professional ML Engineer**: Certified (2023)
- **Certified Kubernetes Administrator (CKA)**: CNCF Certification (2022)
- **Deep Learning Specialization**: Coursera - Stanford University (2020)
- **Chartered Engineer (CEng)**: Institution of Engineering and Technology (2024)

INVITED TALKS AND MEDIA

- **Keynote Speaker** "The Future of Federated Learning in Healthcare"
  Jul. 2024 | ICML Workshop

Delivered keynote address to audience of 500+ researchers and practitioners on privacy-preserving machine learning in medical applications.

- **BBC Technology** Featured Interview
  Mar. 2024 | BBC Radio 4
  Discussed implications of AI in healthcare on national radio program "The Digital Human", audience of 2+ million listeners.
- **TED Talk** "AI That Respects Privacy"
  Nov. 2023 | TEDx Cambridge
  Presented research on federated learning to general audience, video viewed 150k+ times on YouTube.
- **Nature Podcast** Expert Commentary
  Sep. 2023 | Nature Magazine
  Provided expert analysis on recent advances in neural architecture search for Nature's weekly podcast.

REFERENCES

- **Prof. James Richardson, FRS** PhD Supervisor, Imperial College London
  Email: j.richardson@imperial.ac.uk
  Professor of Computer Science and Director of the Centre for AI Research. Available upon request for detailed academic and research references.
- **Dr. Sarah Chen** Senior Director of Research, DeepMind
  Email: sarah.chen@deepmind.com
  Direct supervisor at DeepMind Technologies. Can provide insights into research leadership and technical contributions.
- **Prof. Michael Thompson** Professor, University of Cambridge
  Email: mt@cam.ac.uk
  Former teaching supervisor and current research collaborator. Available for references on teaching and academic service.