Dr Stuart Burrell
Curriculum Vitae

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EDUCATION

MPhil	University of Cambridge	*Machine Learning and Machine Intelligence, Cambridge Trust Scholar*	2021-2022
PhD	University of St Andrews	*Mathematics, Carnegie Scholar*	2016-2020
MMath	University of St Andrews	*Mathematics, First Class Honours, Graduate Medal*	2012-2016

EXPERIENCE

Mathematician   10/2022 – Present
Cyber AI Research Center, Darktrace   *Cambridge, UK*
- Research in unsupervised and self-supervised machine learning
- Applications to autonomous AI for cybersecurity

Postdoctoral researcher   2021
School of Mathematics and Statistics, University of St Andrews   *St Andrews, UK*
- London Mathematical Society Early Career Fellowship
- Research on stochastic processes, geometric measure theory and metric geometry

PUBLICATIONS

Monatsh. Math.	The fractal structure of elliptical polynomial spirals (with K. Falconer and J. Fraser)	2022
Journal of Theoretical Probability	Dimensions of fractional Brownian images	2021
Journal of Fractal Geometry	Projection theorems for intermediate dimensions (with K. Falconer and J. Fraser)	2021
Journal of Number Theory	Digit expansions of numbers in different bases (with H. Yu)	2020
Annal. Acad. Sci. Fenn. Math.	The dimensions of inhomogeneous self-affine sets (with J. Fraser)	2020
Real Analysis Exchange	On the dimension and measure of inhomogeneous attractors	2020

OPEN-SOURCE SOFTWARE

Tabular SSL Suite	Benchmarking suite supporting 5 SOTA tabular self-supervision methods in PyTorch	2022
GAP Semigroups package	Methods on the torsion and order problems of natural & tropical matrix semigroups	2016
GAP Digraphs package	Methods for efficiently computing the simple circuits of a digraph	2016

SKILLS

Tools and Languages	Python, Tensorflow, PyTorch, Git, TeX, Matlab, Bash, UNIX
Teaching	Over 1000+ hours of Mathematics and Statistics tutoring experience in higher education
Communication	Presented at Dynamic Days Europe, Fractals and Stochastic VI and the Royal Society of Edinburgh

CERTIFICATIONS

Data Structures and Algorithms, Udacity	2021
Deep Learning Specialisation, Deeplearning.AI, Coursera	2021
Machine Learning, Stanford University, Coursera	2021
Associate Fellow of the Higher Education Academy, AdvanceHE	2020
Supporting Student Learning, University of St Andrews	2020
Curriculum Design and Assessment, University of St Andrews	2020
Future Leaders Programme, Carnegie Trust	2020

AWARDS AND SCHOLARSHIPS

Cambridge Trust and Corpus Christi College Scholarship, University of Cambridge	2021
University Teaching Awards: Best Postgraduate Tutor (3x Nominee), University of St Andrews	2020
Carnegie Trust PhD Scholar, The Carnegie Trust for the Universities of Scotland	2016
Arthur Hinton Read Memorial Prize for best grades in pure mathematics, University of St Andrews	2016
Duncan Prize for best final year research project, University of St Andrews	2016
Sanderson Prize for best overall degree achievment, University of St Andrews	2016
The Principal's Scholarship for Academic Excellence, University of St Andrews	2015
Head Teacher Award, South Wolds Community School	2012