

# Dr Stuart Burrell

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Curriculum Vitae

stuartburrell.github.io

## EDUCATION

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

## EXPERIENCE

<b>Mathematician</b>	10/2022 – Present
<i>Cyber AI Research Center, Darktrace</i>	

- Research in unsupervised and self-supervised machine learning.
- Applications to autonomous AI for cybersecurity.

<b>Postdoctoral researcher</b>	2021
<i>School of Mathematics and Statistics, University of St Andrews</i>	

- London Mathematical Society Early Career Fellowship
- Research on stochastic processes, geometric measure theory and metric geometry

## PUBLICATIONS

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

## OPEN-SOURCE SOFTWARE

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

## SKILLS

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

## CERTIFICATIONS

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

## AWARDS AND SCHOLARSHIPS

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