STUART BURRELL

Carnegie Scholar ⋄ University of St Andrews ⋄ United Kingdom
LinkedIn ⋄ GitHub ⋄ Website

Email	stuartburrell1994@gmail.com
Phone	+44 7979 004965
Languages	English, Basic German, Basic Japanese
Programming	Python, R, Git/GitHub, GAP, Unix, LaTeX, Maple.

EDUCATION

PhD, Mathematics, *University of St Andrews* — October 2017 - Present
Fractal geometry, dynamical systems and dimension theory.

Scottish Mathematical Sciences Training Center,
Graduate courses in Algebra, Analysis, Topology, Probability and Statistics — 2016 - 2018

Academy for PhD Training in Statistics,
Graduate courses in Statistics at the Universities of Cambridge, Durham and Glasgow. — 2016 - 2017

Machine Learning Engineer Nanodegree, *Udacity* — 2016 - 2017

MMath, Mathematics, First Class Honours (93%/GPA 4.0), *University of St Andrews* — 2012 - 2016

PUBLICATIONS

The dimensions of inhomogeneous self-affine sets (with J.M. Fraser), arXiv — July 2018
submitted.

On the dimension and measure of inhomogeneous attractors, arXiv — May 2018
Real Analysis Exchange (to appear).

SOFTWARE CONTRIBUTIONS

GAP Semigroups package — 2016
Methods to decide the order and torsion problems of natural and tropical matrix semigroups.

GAP Digraphs package — 2016
Methods for computing the simple circuits of a digraph.

EXPERIENCE

Research in Statistical Ecology and Machine Learning — 2016-2017
Centre for Research into Ecological and Environmental Modelling, St Andrews.

GAP Software Development — Summer 2016
School of Mathematics and Statistics, University of St Andrews, St Andrews.

Laidlaw Internship in Research and Leadership — Summer 2015
School of Mathematics and Statistics, University of St Andrews, St Andrews.

Undergraduate Research Summer School — Summer 2014
School of Mathematics and Statistics, University of St Andrews, St Andrews.

AWARDS AND SCHOLARSHIPS

Poster Award, *Fractals and Stochastics 6* — October 2018
Carnegie PhD Scholarship — 2016-2020
Duncan Prize, *University of St Andrews* — 2016
Sanderson Prize, *University of St Andrews* — 2016
The Arthur Hinton Read Memorial Prize, *University of St Andrews* — 2016
ODSC Machine Learning/Deep Learning Scholarship — 2016
IMA Graduate Prize Winner, *Institute of Mathematics* — 2016
Graduate Medal in Mathematics, *University of St Andrews* — 2016

The Principal's Scholarship for Academic Excellence, *University of St Andrews*	2012-16
The University Scholarship for Research and Leadership, *University of St Andrews*	2015
The Deans' List for Academic Excellence, *University of St Andrews*	2012-16
Gold Duke of Edinburgh Award	2013

TALKS

Energetic dimension interpolation on projections of sets	March 2019
Pure Analysis Seminar, St Andrews.	
Capacity theoretic approaches to dimension	March 2019
Pure Postgraduate Seminar, St Andrews.	
Foundations and applications of fractal geometry	January 2019
Postgraduate Interdisciplinary Mathematical Symposium, Glen Esk	
Dimension drop and inhomogeneous self-affine sets	October 2018
Pure Analysis Seminar, St Andrews.	
The dimensions of inhomogeneous self-affine sets (poster presentation)	October 2018
Fractals and Stochastics VI, Bad Herrenalb, Germany.	
A brief note on the dimension of inhomogeneous attractors	September 2018
Dynamic Days Europe, Loughborough.	
A universal upper bound on the dimension of inhomogeneous attractors	June 2018
British Mathematical Colloquium, St Andrews.	
How big are inhomogeneous attractors?	May 2018
Edinburgh Mathematical Society PG Student Meeting, The Burn, Glen Esk	
On the dimension and measure of inhomogeneous attractors	April 2018
Pure Analysis Seminar, St Andrews.	
An introduction to inhomogeneous attractors	April 2018
Pure Postgraduate Seminar, St Andrews.	
An introduction to iterated function systems	February 2018
Postgraduate Interdisciplinary Mathematical Symposium, Glen Esk	
Dimension of inhomogeneous self-conformal and self-affine sets	January 2018
School Research Day, St Andrews.	
Inhomogeneous attractors and upper box dimension	December 2017
Insitut Mittag-Leffer, Stockholm, Sweden.	
Trace contrast methods in acoustic space	January 2017
African Institute of Mathematical Sciences, Cape Town, South Africa.	
An introduction to trace contrast methods	January 2017
University of Cape Town, Cape Town, South Africa.	
Sequential Monte Carlo in population dynamics	April 2016
School of Mathematics and Statistics, St Andrews.	
Artificial intelligence and Gödel's incompleteness theorems	February 2015
School of Mathematics and Statistics, St Andrews.	

OUTREACH

Sundials, dimensions and fractal projections	February 2019
The Royal College of Physicians and Surgeons, Glasgow	
Positive problem solving	February 2019
First Chances Scheme, University of St Andrews	
The journey to a PhD in Mathematics	July 2018
UWS Summer STEM Academy, Glasgow.	
Fractal geometry in nature and art	February 2018
The Royal Society of Edinburgh, Edinburgh.	

CONFERENCES

Fractal Geometry and Stochastics VI	October 2018
Evangelische Akademie Baden, Bad Herrenalb, Germany	
CMI at 20	September 2018
Clay Mathematics Institute, Oxford.	
Dynamic Days Europe	September 2018
University of Loughborough, Loughborough.	
Thermodynamic Formalism in Dynamical Systems	June 2018
International Centre for Mathematical Sciences, Edinburgh.	
British Mathematical Colloquium	June 2018
University of St Andrews, St Andrews.	
Fractals and Dimensions	December 2017
Insitut Mittag-Leffler, Stockholm, Sweden	
ODSC (Machine Learning/Deep Learning)	October 2016
London.	

TEACHING

All available student feedback data is included and reported on a scale of 1 (excellent) to 5 (poor) in the cateogires of Explanation (E), Organisation (O) and Availability (A).

Mathematics and Statistics Tutor, *CAPOD, University of St Andrews*,	2016 - Present
MT2502 Analysis, *Tutor, University of St Andrews*	Autumn 2018
E = 1.09, O = 1.33, A = 1.0	
MT2000 Python, *Demonstrator, University of St Andrews*	Autumn 2018
Math Base, *Tutor, University of St Andrews*	Autumn 2018
MT1002 Mathematics, *Demonstrator, University of St Andrews*	Spring 2018
MT1002 Mathematics, *Tutor/Demonstrator, University of St Andrews*	Autumn 2017
E = 1.62, O = 1.65, A = 1.17	
MT1003 Pure and Applied Mathematics, *Tutor (temporary), University of St Andrews*	Spring 2017
MT2508 Statistical Inference, *Demonstrator, University of St Andrews*	Spring 2017
MT2504 Combinatorics and Probability, *Tutor/Demonstrator, University of St Andrews*	Autumn 2016
E = 1.17, O = 1.15, A = 1.17	
MT2000 Introduction to Python, *Demonstrator, University of St Andrews*	Autumn 2016

WORKSHOPS

Postgraduate Interdiscipliniary Writing Workshop	August 2018
University of St Andrews, The Burn, Glen Esk.	
Summer School in Dynamics (Introductory and Advanced)	July 2018
International Centre for Theoretical Physics, Trieste, Italy.	
Postgraduate Interdisciplinary Mathematical Symposium	January 2018
University of St Andrews, The Burn, Glen Esk.	
Statistical Methods in Gibbon Conservation	August 2017
Centre for Research into Ecological and Environmental Modelling, St Andrews.	
Estimating Animal Abundance and Density using Acoustic Data	January 2017
University of Cape Town, Cape Town, South Africa.	
Scottish Mathematical Craining Center Symposium	October 2016
Perth.	
CoDiMa software carpentry	October 2016
International Centre for Mathematical Sciences, Edinburgh.	
Advanced PAMGuard	October 2016
PAMTech, Edinburgh.	
Spatial Capture-Recapture Methods	August 2016
Centre for Research into Ecological and Environmental Modelling, St Andrews.	

Laidlaw Leadership Program   2015
endorsed by the Institute of Management, St Andrews.

PROFESSIONAL RESPONSIBILITIES

Carnegie Trust Scholars Network, *Event organiser*	2019 - Present
Postgraduate Interdisciplinary Mathematical Symposium, *Organiser*	2018 - 2019
Scottish Mathematical Sciences Training Centre Council, *Student Representative*	2016 - 2017