Department of Mathematical Sciences
University of Bath, Bath. BA2 7AY. UK.
☎ *+441225385632*
✉ *B.A.Robinson@bath.ac.uk*
people.bath.ac.uk/br275/

Benjamin A. Robinson

Education

Current **PhD in Statistical Applied Mathematics**, *University of Bath*.
Stochastic Control Problems for Multidimensional Martingales, supervised by Alex Cox. Funded by EPSRC Centre for Doctoral Training in Statistical Applied Mathematics at Bath (SAMBa) EP/L015684/1. Member of leading probability research group Prob-L@b.

2016 **MRes in Statistical Applied Mathematics**, *University of Bath*, *Distinction*.
Graduate-level courses: *Applied Stochastic Differential Equations, Rough Paths, Optimal Stochastic Control and Backward SDEs, Lévy Processes, Applied Statistical Inference, Bayesian and Large Scale Methods, Scientific Computing, Numerical Solution of Elliptic PDEs, Inverse Problems and Data Assimilation, Sobolev Spaces, Advanced PDEs*.
Masters Dissertation: *Constrained Optimal Stopping Problems*, supervised by Alex Cox.

2015 **MSci in Mathematics**, *University of Bristol*, *First Class*.
Masters Dissertation: *Ergodicity of Stochastic Processes and the Markov Chain Central Limit Theorem*, supervised by Márton Balázs.

Publications

[1] Alexander M. G. Cox and Benjamin A. Robinson, *Dynamic programming and comparison principles for viscosity solutions in the optimal control of martingales*, In preparation.

[2] _____, *Optimal control of martingales in a radially symmetric environment*, In preparation.

[3] _____, *An SDE with no strong solution arising in a problem of stochastic control*, In preparation.

Academic Service

Jun 2018 **Organiser of SIAM UKIE National Student Chapter Conference**, *University of Bath*.

2017-2018 **Organiser of Postgraduate Seminar Series**, *Department of Mathematical Sciences, University of Bath*.

Jun 2017 **Organiser of SAMBa Summer Conference**, *University of Bath*.

Mar 2017 **Organiser of Bath SIAM-IMA Student Conference**, *University of Bath*.

2016-2018 **Treasurer of University of Bath SIAM-IMA Student Chapter**, *University of Bath*.

Grants and Awards

2019 **University of Leeds Travel Grant**, 220 GBP.
Grant to attend *2nd Leeds Conference on Stochastic Control and Games under Ambiguity*

2018 **Haudorff Centre for Mathematics Travel Grant**, 150 EUR.
Grant to attend *Hausdorff School: Optimal Transport Meets Economic Theory*

2017-2018 **Grants for SIAM UKIE National Student Chapter Conference**, 6,350 GBP.
Successfully applied for grants to organise this national conference from SIAM, the IMA, the University of Bath Doctoral College, the Bath Institute for Mathematical Innovation, and the Department of Mathematical Sciences at the University of Bath.

2017 **SIAM Student Chapter Certificate of Recognition**, *University of Bath*.

2015 **Howell Peregrine Prize for Best Undergraduate Project**, *University of Bristol*.

Seminars, Conferences and Workshops

Apr 2019 **2nd Leeds Conference on Stochastic Control and Games under Ambiguity**, *University of Leeds, UK*, Contributed Talk.
Optimal Control of Martingales in a Radially Symmetric Environment

Jul 2018 **Hausdorff School: Optimal Transport Meets Economic Theory**, *Hausdorff Centre for Mathematics, Universität Bonn, Germany*, Invited Participant.

Sep 2017 **Workshop on Martingale Optimal Transport (and Friends)**, *University of Oxford, UK*, Invited Participant.

Sep 2017 **Conference on Stochastic Control, Ambiguity and Games**, *University of Leeds, UK*, Poster Presentation.
Stochastic Optimal Control Problems Related to Martingale Optimal Transport

Jun 2017 **BUC-VIII Workshop on Stochastic Optimal Control**, *CIMAT, Guanajuato, Mexico*, Contributed Talk.
Stochastic Optimal Control Problems Related to Martingale Optimal Transport

2015-2018 **Student Seminars**, *Dept. of Mathematical Sciences, University of Bath, UK*.
Gave six talks in general and specialist seminar series for postgraduate students.

Industrial Research Projects

Participated in five SAMBa Integrative Think Tanks (ITT), working in interdisciplinary teams during intensive week-long workshops to formulate precise mathematical problems from high-level applied challenges in collaboration with industrial partners, and presenting the outcomes orally and in written research proposals.

Jan 2019 **Optimal Stopping for Early Drought Detection**, *Willis Towers Watson*, ITT9.
Investigated analytical and numerical properties of optimal stopping problems for time series climate data to minimise expected detection time, constraining probability of false alarm.

Jun 2017 **Bayesian Inference on Nuclear Magnetic Resonance**, *Schlumberger*, ITT6.
Adapted C code for Bayesian inference with atomic priors in order to estimate relaxation times for nuclear magnetic resonance in rocks and to quantify the uncertainty.

Jan 2017 **Modelling Dermal Absorption of Chemicals**, *Syngenta*, ITT5.
Investigated application of random walk models to describe the absorption of chemical particles through the inhomogeneous media of human skin and leaves of plants.

Jun 2016 **Optimising the Drug Development Process**, *AstraZeneca*, ITT4.
Designed a Bayesian decision framework for the end-to-end drug development process and investigated applying measure-valued optimal stopping to adaptive clinical trials.

Jan 2016 **Developing a Model for Sea Ice**, *Met Office*, ITT3.
Reconstructed historical sea ice concentrations using a Bayesian hierarchical model, incorporating latent Gaussian random fields, implemented in R-INLA.

Teaching Experience

2019-Present **Senior Peer Tutor**, *Mathematics Resource Centre (MASH), University of Bath*.
Lead a team of tutors to run drop-in sessions for first year mathematics undergraduates.
Provide mathematical and statistical support at drop-in sessions for all disciplines.

2015-2019 **Casual Teaching Assistant**, *Dept. of Mathematical Sciences, University of Bath*.
Led tutorials for first year Analysis and Probability courses, and second year Analysis course.

2016 **Part Time Teaching Fellow**, *School of Management, University of Bath*.
Led seminars for MSc course on Financial Derivatives

2014-15 **Teaching Support Assistant**, *School of Mathematics, University of Bristol*.
Led tutorials for first year Probability, Statistics and Linear Algebra courses.

Other Employment

2017-Present **Data Analysis & Digital Marketing Consultant**, *Swoop Travel*, Bristol, UK.

2014-2017 **Part Time Digital Marketing Assistant**, *Swoop Travel*, Bristol, UK.

2013-2014 **Digital Marketing Intern**, *Swoop Travel*, Bristol, UK.

Programming Experience

R, MATLAB, Python, Fortran, C, HTML, CSS, SQL.
Familiarity with good software engineering principles and version control using Git.