FRUZSINA J AGOCS

(+44)07835293746 ⋄ fa325@cam.ac.uk ⋄ web

Gonville and Caius college ⋄ CB2 1TA Cambridge, UK

Kavli Institute for Cosmology ⋄ Madingley road, CB3 0HA Cambridge, UK

EDUCATION

PhD in Theoretical and Computational Cosmology   October 2017 - Present
University of Cambridge

For my PhD, I developed and implemented a novel numerical method to solve ordinary differential equations with highly oscillatory solutions efficiently. Using this method can give a significant speed-up in the forward-modelling of the Cosmic Microwave Background, allowing easier inference of the conditions before the onset of inflation.

Additional Part III courses taken include: Astrostatistics (Bayesian statistics with applications in Astrophysics), Machine Learning and Algorithms for Data Mining, Probabilistic Machine Learning, Cosmology, Advanced Cosmology

MSc in Theoretical and Experimental Physics   2016 - 2017
Gonville and Caius college, University of Cambridge

1st class
Awarded the Duncan Bruce memorial prize for Physics

BA in Natural Sciences   2013 - 2016
Gonville and Caius college, University of Cambridge

Specialised in Physics and Mathematics
1st class
Awarded Senior Scholarship

EXPERIENCE

Kokoon Technology Ltd.   July - September 2016, July - August 2017
Research Engineer   *London, UK*

I worked on the 5-stage classification of sleep based on data from a skull electroencephalogram and an accelerometer, using machine learning techniques such as random forests and support vector machines.

Institute of Astronomy, University of Cambridge   June - September 2015
Research student   *Cambridge, UK*

To better understand the mechanism of accretion in supermassive black holes, I wrote a program that (with or without user supervision) subtracts contamination from the hosting galaxy from the spectral energy distribution of such objects.

TECHNICAL SKILLS

Programming	Python, C++, MATLAB
Version control	git
Editing	LaTeX, vim
Computer algebra	Maple, Mathematica
OS	Linux, Mac OS, Windows

PUBLICATIONS

F. J. Agocs, W. J. Handley, A. N. Lasenby, M. P. Hobson. An efficient numerical method for oscillatory differential equations, with physical applications (in prep.)

F. J. Agocs, W. J. Handley, A. N. Lasenby, M. P. Hobson. Investigating the gauge-invariance of quantum initial conditions for inflation (in prep.)

TALKS AND POSTERS

KICC10: 10th year anniversary of Kavli Institute for Cosmology, Cambridge (poster)	Sept 2019
Seminar, Kavli Institute for Cosmology, Cambridge (talk)	Oct 2018

Efficient numerical solutions for oscillatory differential equations

CDT Summer school in machine learning, University College London (poster)	July 2018
Seminar, Battcock Centre, University of Cambridge (talk)	June 2017

The Runge-Kutta-Wentzel-Kramers-Brillouin method and the primordial Universe

REFEREES

Prof. Mike Hobson (PhD supervisor)
Cavendish Astrophysics Group, CB3 0HA Cambridge, mph@mrao.cam.ac.uk

Dr. William Handley (PhD and Masters project supervisor)
Cavendish Astrophysics Group and Kavli Institute for Cosmology, CB3 0HA Cambridge, wh260@cam.ac.uk

Prof. Anthony Lasenby (PhD supervisor)
Cavendish Astrophysics Group and Kavli Institute for Cosmology, CB3 0HA Cambridge,
a.n.lasenby@mrao.cam.ac.uk