

Alex Gough

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Education

Newcastle University <i>PhD Applied Mathematics</i> Thesis topic: Cosmic structure formation in the nonlinear regime Supervisor: Cora Uhlemann	Newcastle upon Tyne, UK 2020–Present
Oxford University (Balliol College) <i>MMathPhys Mathematical and Theoretical Physics, Distinction</i>	Oxford, UK 2019–2020
Oxford University (Balliol College) <i>BA Physics, 1st Class</i>	Oxford, UK 2016–2019

Experience

Research

School of Mathematics, Statistics, and Physics, Newcastle University <i>Postgraduate Researcher</i> Conducting research in the area of cosmology, with a focus on dark matter dynamics and statistical techniques for understanding cosmic large scale structures.	Newcastle, UK 09/2020–Present
Sub-department of Astrophysics, University of Oxford <i>Astrophysics Research Intern</i> Conducted research on an extension to standard statistical modelling techniques for polarised foregrounds in future CMB experiments [1].	Oxford, UK 06/2019–09/2019
Manoharan Lab, Harvard University <i>Physics Research Intern</i> Designed and built an inline holographic microscope to track nanoparticles in solution, with modifications for dark-field holography.	Cambridge, MA, USA 06/2015–09/2015

Education/Teaching

School of Mathematics, Statistics, and Physics, Newcastle University <i>Teaching assistant</i> I assist in running undergraduate physics and mathematics courses by facilitating virtual teaching, running problems classes, and marking assignment.	Newcastle, UK 09/2020–Present
The Ogden Trust/Gosford Hill School <i>Physics School Intern</i> Helped rewrite KS3 schemes of work and mark exams. Planned and delivered a supplementary lesson to A level students. Ran a careers workshop for year 9 students.	Oxford, UK 06/2018–07/2018
Science Oxford <i>Live event staff member</i> Helped support existing public outreach events run by Science Oxford including Saturday Science Clubs.	Oxford, UK 05/2018–01/2020
Sudbury Parks and Recreation <i>Science Specialist</i> Designed and ran demonstrations/activities for children ages 5–10 at a summer camp.	Sudbury, MA, USA 07/2017–08/2017

Lincoln Sudbury Regional High School*Maths/Science Tutor*

Worked with students referred to academic support centre on homework and school work, particularly focusing on mathematics and sciences.

Sudbury, MA, USA*12/2016–01/2017***Museum of Science***Early Childhood Interpretation Intern*

Assisted in daily operation of the Discovery Center by maintaining and running exhibits and activities for children ages 0–8. Assisted in professional development of new volunteers.

Boston, MA, USA*06/2016–08/2016***Kumon Math and Reading Center***Early Learning Educator/Grader*

Worked individually with children to develop basic reading and number skills. Marked math and reading exercises.

Sudbury, MA, USA*09/2013–06/2014***Miscellaneous****Oxford Taekwondo School***Assistant Instructor***Oxford, UK***09/2016–06/2020***Oxford Taekwondo School***Treasurer***Oxford, UK***06/2018–06/2019***Giorgio's Taekwondo***Instructor***Sudbury, MA, USA***09/2010–09/2016***Outreach and Inclusivity Work****Astrobites collaboration***Contributing Author*

Contribute articles summarising current astrophysics research to undergraduate level approximately once per month.

International*01/2021–Present***Department of Physics, Oxford***Public Outreach Volunteer*

Participated in running events to increase scientific literacy, reaching thousands of children and adults each year.

Oxford, UK*01/2020–04/2020***Museum of Science***Discovery Center Volunteer*

Assisted in daily operation of the Discovery Center by maintaining and running exhibits and activities for children ages 0–8.

Boston, MA, USA*06/2015–06/2016***Presentations and Conferences****Conferences and workshops**

- **2021:** STFC School for New Astronomy Research Students

Public lectures

- **2020:** *The Skeleton of Our Universe*, Newcastle Astronomical Society

Publications

- [1] S. Azzoni, M. H. Abitbol, D. Alonso, **Gough, A.**, N. Katayama, and T. Matsumura. A minimal power-spectrum-based moment expansion for CMB B-mode searches. *arXiv e-prints*, page arXiv:2011.11575, Nov. 2020.