

ALEXANDER C. W. GOUGH

EDUCATION

Newcastle University – School of Mathematics, Statistics, and Physics **2020–2024**
PhD Mathematics

- Topic: Large scale structure of the universe in the nonlinear regime.

Oxford University – Balliol College **2016–2020**
BA Physics – 1st class *2016–2019*
MMathPhys – Distinction *2019–2020*

RESEARCH EXPERIENCE

Astrophysics Subdepartment, Oxford University, Oxford **Summer 2019**
Physics Research Intern

- Studied a parametric moment expansion to model polarised galactic foregrounds.

Manoharan Lab, Harvard University, Cambridge, MA **Summer 2015**
Physics Research Intern

- Designed and built an inline holographic microscope to track nanoparticles in solution, with modifications for dark-field holography.

Computing languages/skills

- Comfortable with \LaTeX and Python, basic familiarity with Matlab.

TEACHING/OUTREACH EXPERIENCE

Oxford Physics Department, Oxford **January 2020**
Public outreach volunteer (Oxford Stargazing)

The Ogden Trust/Gosford Hill School, Oxford **Summer 2018**
Physics School Intern

- 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.

The Oxford Trust: Science Oxford, Oxford **2018–Present**
Live Event Staff Member (part time)
Saturday Science Club Event Volunteer (part time)

- Support existing activities run by Science Oxford including Saturday Science Clubs.
- Support community outreach events that aim to engage local communities in encouraging and facilitating the study and communication of STEM subjects.

Sudbury Parks and Recreation, Sudbury, MA **Summer 2017**
Summer Camp Science Specialist

- Designed and ran demonstrations/activities for children ages 5–10 at a summer camp.

Lincoln-Sudbury Regional High School, Sudbury, MA **2015–2016**

Academic Support Centre/METCO Tutor 2016
Accelerated Physics Teaching Assistant 2015–2016

- Worked with students referred to academic support centre on homework and school work, particularly focusing on mathematics and sciences.
- Helped facilitate lab work and answer questions in an accelerated physics class for high school seniors in their final year of school.

Museum of Science, Boston, MA 2015–2016
Early Childhood Interpretation Intern Summer 2016
Youth Volunteer 2015–2016

- Assisted in daily operation of the Discovery Centre, which specialises in ages 0–8, by interpreting and maintaining exhibits and running activities.
- Assisted in professional development of new volunteers.
- Developed new sensory area activity to explore colour mixing and artistic integration into science designed for children under 5.
- Participated in professional development in a Mind in the Making workshop focusing on psychology of childrens' learning.

Kumon Math and Reading Centre of Sudbury, Sudbury, MA 2013–2014
Early Learning Educator and Grader

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

OTHER EXPERIENCE

Oxford University Taekwondo School 2016–Present
Assistant Instructor 2016–Present
Treasurer 2018–2019

Giorgio's Taekwon-do, Sudbury, MA 2010–2016
Black Belt Class Director 2014–2016
Lead Instructor of the KidKwon-Do Program 2012–2016
Taekwon-Do Instructor 2010–2016

OTHER AWARDS/QUALIFICATIONS

Ken Allen Prize, Balliol College 2019
• For experimental work based on project: *Colour magnitude diagrams for open clusters.*

Taekwon-do 4th Dan International Instructor, ITF 2019
• Dan number GB-4-355, International Instructor in ITF Taekwon-do.

MOScar, Boston Museum of Science 2015
• For “best example of volunteer mission and spirit.”

Alexandra Massand Award, Giorgio's Taekwon-do 2010
• “To honor outstanding achievement in Taekwon-Do and an indomitable spirit.”