

ALEXANDER C. W. GOUGH

EDUCATION

Oxford University – Balliol College	2016–2020
<i>BA Physics – 1st class</i> (will be awarded in 2020)	<i>2016–2019</i>
<i>MMathPhys</i>	<i>2019–2020</i>

RESEARCH EXPERIENCE

Astrophysics Subdepartment, Oxford University, Oxford	Summer 2019
<i>Physics Research Intern</i>	

- Studied a parametric moment expansion to model polarised galactic foregrounds (in particular synchrotron and dust emission).
- Paper in preparation: *A moment expansion approach to spatially varying CMB foreground spectral dependencies.*

Manoharan Lab, Harvard University, Cambridge, MA	Summer 2015
<i>Physics Research Intern</i>	

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

Computing languages/skills

- Comfortable with L^AT_EX and Python, basic familiarity with Matlab.

TEACHING EXPERIENCE

The Ogden Trust/Gosford Hill School, Oxford	Summer 2018
<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.

The Oxford Trust: Science Oxford, Oxford	2018–Present
<i>Live Event Staff Member</i> (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
<i>Summer Camp Science Specialist</i>	

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

Lincoln-Sudbury Regional High School, Sudbury, MA	2015–2016
<i>Academic Support Centre/METCO Tutor</i>	<i>2016</i>

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

2012–2016

Assistant Taekwon-Do Instructor

2010–2012

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.”

Harvard Book Prize

2015

Alexandra Massand Award, Giorgio's Taekwon-do

2010

- “To honor outstanding achievement in Taekwon-Do and an indomitable spirit.”