

CONTACT INFORMATION	School of Engineering Mathematics Queen's building University of Bristol BS15 1RZ UK	kn22417@bristol.ac.uk aa2147@cantab.ac.uk
EMPLOYMENT	University of Cambridge , Cambridge, UK Murray Edwards College Summer School Deputy Director July 2023 – August 2024 Summer School Director October 2024 – August 2025 University of Cambridge , Cambridge, UK Department of Applied Mathematics and Theoretical Physics Cambridge Mathematics Open intern July 2022 – August 2022 University of Bristol , Bristol, UK Faculty of Engineering Widening participation tutor July 2023 –	
EDUCATION	University of Bristol , Bristol, UK School of Electrical, Electronic and Mechanical Engineering Ph.D., Mathematics November 2022 – <i>Advisors: Dr Andrew Lawrie, Dr Stuart Thomson</i> <i>Thesis title: Hydrogen Ventilation in a Geological Disposal facility</i> University of Cambridge , Cambridge, UK BA Mathematics October 2019 – June 2021 <i>Courses mostly in applied mathematics.</i>	
RESEARCH INTERESTS	• Experimental Fluid Dynamics • Numerical methods in Fluid Dynamics • Molecular processes in Fluids	
TALKS AND PRESENTATIONS	Research Talks • EFDC2 – 2nd European Fluid Dynamics Conference, Dublin 2025 ‘Mixing behaviour of plumes’ • RSO advanced manufacturing webinar (Online) 2024 ‘Ventilation of Hydrogen in UILW Vaults ’ • RSO annual conference, Sheffield 2024 ‘Mixing Behavior of Laminar Plumes with and without a Ventilating Crossflow’ • RSO annual conference, Leeds 2023 ‘Hydrogen Ventilation in a Geological Disposal Facility’ • CMP presentation day, Cambridge 2022 ‘The motion of anisotropic carbon nano-particles in shear flow:	

- a hydrodynamic perspective’
- Murray Edwards College Maths Circle, Cambridge 2019
‘Sphere packing’

Outreach Talks

- Insight Into Bristol for Y12 2024–2025
- Sutton Trust Summer School for Y12 2024–2025

UNDERGRADUATE TEACHING EXPERIENCE

Lead Demonstrator *Wrote and delivered weekly tutorials*

University of Bristol

Introduction to Pure Mathematics Sept 2024 – Dec 2024
Probability and Statistics Jan 2025 – March 2025

Supervisor

Various colleges¹ at University of Cambridge

II Fluid Dynamics Michaelmas 2024 - Easter 2025

Teaching Assistant

University of Bristol

Continuum mechanics January 2024 – May 2024
Applied Linear Algebra March 2024 – April 2024
Modelling in Applied mathematics Sept 2024 – Dec 2024
Engineering Mathematics Sept 2024 –

Private Tutor

A Level Mathematics (online and in-person) October 2019 –
A Level Further Mathematics (online and in-person) October 2019 –
A Level Physics(online) October 2019 –
A Level Computer science (online) October 2019 –
STEP Mathematics (online) October 2020 –
MAT (online) October 2020 –

OUTREACH & ENRICHMENT

Summer School Director *Created teaching materials and timetables; made admissions decisions; delivered classes and supervisions; ran evening activities.*

Murray Edwards College, Cambridge

She Talks Science STEP summer school, for Y12 2025–

Summer School Deputy Director *Contributed to teaching materials, delivered classes, and supervisions, ran evening activities*

Murray Edwards College, Cambridge

She Talks Science STEP summer school, for Y12 2023–24

Summer School Staff *Delivered classes, and supervisions, ran evening activities*

Murray Edwards College, Cambridge

Murray Edwards STEP summer school, for Y12 2019 - 2022

University of Cambridge

Sutton Trust Summer School 2021 - 2022

¹Emmanuel, Queen’s, Sidney Sussex, Murray Edwards, Magdalene, and Jesus.

	Intro to Maths at Uni	July 2021
	University of Bristol, Bristol	
	Sutton Trust Summer School	July 2024 – 2025
	Insight Into Bristol Summer School	July 2024 – 2025
ADMISSIONS, EXAMINING, OLYMPIADS	Maths Undergraduate Admissions Interviewer <i>writing questions, interviewing, assessing applicants.</i>	
	Homerton College, Cambridge	2024
	Vetter <i>Assessing content, scope, difficulty, and clarity of wording on draft versions of papers and providing feedback.</i>	
	UK Mathematical Olympiad for Girls	2019
	TMUA	2024
	ESAT	2024
	Marker <i>implementing and feeding back on mark scheme.</i>	
	University of Bristol	
	Applied linear algebra coursework	2024
	Engineering mathematics	2024
	Introduction to Pure Mathematics	2024
	Probability and Statistics	2025
	Applied analysis B	2025
	Cambridge Assessment	
	Sixth Term Examination Papers (STEP) III	2024 – Present
	United Kingdom Mathematics Trust	
	UK Mathematical Olympiad for Girls	2019
SERVICE	Panellist	
	• Mathematics Open Day, University of Cambridge	2022
	• Sutton Trust Experience Cambridge Day	2020-22
ADDITIONAL SKILLS	• Proficient in MATLAB, Python, C, and $\text{\LaTeX}$; • Reading and conversational proficiency in Urdu; • Experienced with virtual teaching platforms including Zoom, Microsoft Teams, Voov, Moodle, Whereby, Lessonspace, and Blackboard; • Skilled in developing numerical simulations using the Finite Element Method; • High Performance Computing (Blue Crystal 4 cluster) – experienced in running simulations and managing parallel computations.	

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REFEREES

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