ADIL RAZA
PhD Student in Mathematics

Contact Information

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Education

- **PhD Mathematical Sciences**
  University of Liverpool
  2024 - Present

  – Thesis Title: Birational Geometry of Fano Varieties and Fano-Mori Fibre Spaces

  – Supervisor: Professor Aleksandr Pukhlikov

  – Research Group: Algebraic Geometry

- **M.Sc. Mathematics**
  University of Warwick
  2023 - 2024

  – Grade: Distinction

  – Dissertation Title: Subvarieties with Splitting Tangent Sequences

  – Dissertation Supervisor: Professor Dmitriy Rumynin

- **B.Sc. (Hons) Mathematics**
  University of Kent
  2020 - 2023

  – Grade: First Class

  – Awarded the McVittie Prize for significant non-academic contributions

  – Dissertation Title: An Introduction to Category Theory

  – Dissertation Supervisor: Dr Constanze Roitzheim

Programming Languages

- **LaTeX** - Expert

- **Python** - Proficient

- **Lean** - Proficient

- **Lua** - Proficient

Supercurricular

- **Conference speaker: Tomorrow's Mathematicians Today 2023**

- **Attendee: 2022 Xena Project Undergraduate Workshop**
  Imperial College London
  26th - 30th September 2022
  Organiser: Professor Kevin Buzzard

  – Collaborated with my group and shared my knowledge of Mordell's equations in Lean

  – Created a clear and concise presentation of our work and the challenges we faced

Professional & Research Experience

- **Student Demonstrator**
  University of Liverpool
  September 2024 - Present

  – Teaching Assistant for MATH243: Complex Functions

  – Teaching Assistant for MATH283: Field Theory and PDEs

- **Senior Graduate Teaching Assistant**
  University of Warwick
  October 2023 - March 2024

  – Supervised 22 students in analysis, algebra, calculus and mathematical modelling

  – Teaching assistant for MA222: Metric Spaces

- **Internship: Mathematics Formalisation in Lean (UROP)**
  Imperial College London
  3rd July - 10th August 2023
  Supervisor: Professor Kevin Buzzard

  – Formalised group theory

  – Contributed to a group project

  – Presented my work

- **Student Representative**
  University of Kent, SMSAS division
  September 2021 - July 2023

  – Attended relevant academic meetings

  – Contributed opinions on the restructuring of the mathematics degree at Kent

  – Acted as a bridge between students and staff

- **Internship: Mordell's Equations in Lean (UROP)**
  Imperial College London
  4th July - 25th August 2022
  Supervisor: Professor Kevin Buzzard

  – Identified difficulties in translating elementary Number Theory into Lean

  – Formalised three specific cases of unsolvability and one general case

  – Formalised ten supplementary lemmas

  – Contributed two proofs to Mathlib

- **Internship: Primality Proving Project**
  University of Kent
  11th July - 8th August 2022
  Supervisor: Professor Andy Hone

  – Compared various methods of primality tests

  – Programmed the Lucas–Lehmer primality test in logarithmic time

  – Programmed an algorithm to compute the nth Fibonacci number in logarithmic time

  – Researched elliptic curve primality proving (ECPP)

  – Researched relevant academic literature

- **Mathematics Private Tutor**
  Self-Employed
  February 2021 - Present
  11 Plus - A-Level

  – Over 1000 hours of experience

  – Increased student's grades by at least two grades