# ADIL MIAN

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GitHub: AdilGM

## EDUCATION

**MPhil in Physics** *April 2023 - April 2024*
Cambridge University
Project Title: "Pakistan Flood Mapping" - supervised by Dr. Hugo Lepage, Professor Crispin Barnes
Developing an open-source simulation using remote sensing techniques to develop a predictive national and full-scale simulation to model flooding in Pakistan. Parameters of the model are studied to assess how the devastation caused by floods can be mitigated.

**BSc Physics** *September 2018 - June 2021*
Queen Mary University of London
Third Year Modules Included: | Mathematical Techniques 4 (89.1) | Quantum Mechanics B (91.4) | Statistical Data Analysis (87.2) Classification: 1st Class

Final Year Project Title: "Development of the Level 1 Calorimeter trigger for electroweak precision measurements" (83.5) - supervised by Dr. Ulla Blumenschein.

## WORK EXPERIENCE

**Developer - JNCC** *May 2022 - October 2022*

- Responsible for program development to detect change in UK habitats using satellite data and presenting it in an intuitive front-end interface, based on a leaflet map and dynamic graphs.
- Worked with spatial data using geographic information systems (GIS) to produce statistical analysis of analysis ready geosatellite data.
- Led and delivered a project on accessible coding with respect to map design within 2 months of starting, followed by a workshop within the department to facilitate design accessibility.

**Summer Research Intern - Mihaela van der Schaar Lab** *June 2022 - August 2022*

- Proposed and developed a project on Ethical AI development with the Mihaela van der Schaar Lab as a Philippa Fawcett intern, which involved a successful modular research and design phase, collaborating with researchers within the lab and internationally.
- Delivered a completed product with API and back-end, which increased accessibility for non-ML experts by allowing bias assessment in algorithms and running various fairness metrics on datasets.
- Presented results at a conference to 30+ global researchers.

**IBM Particle Physics Intern - QMUL** *July 2021 - September 2021*

- Developed parametrised Neural Networks for the search of heavy Higgs Bosons using ROOT.
- Initially learnt and used TensorFlow python API to build the NN, and switched mid-project to PyTorch due to the need for customisability.
- Observed and presented results in weekly CERN analysis meetings.

**Research Project Leader - QConsult** *March 2021 - June 2021*

- Spearheaded a team of 5 to deliver a research project for DryGro, a technology agricultural startup.
- Developed thorough knowledge of relevant literature analysis and employed data analysis methods for critical evaluation of statistically significant research.

Other roles include: Researcher - Alan Turing Institute, Open Summer intern - CERN, MPLS Intern - Oxford University, Maths and Science Teacher - Civitas Schools.

## FURTHER WORK EXPERIENCE

**Researcher - Yasmeen Lari Heritage Foundation** *June 2023 - Currently*

- Aided in setting up connections between University of Cambridge and Pakistani universities for sustained flood resistant research.
- Organised a trip to Pakistan for 30+ students to learn of indigenous technology and land practices.
- Developed technologies with local people on flood resistance using indigenous materials.

**Associate - Cambridge Digital Humanities** *September 2023 - Currently*

- Awarded an Associate position due to pioneering work in 3-D digitisation of heritage items.
- Developed and delivered a community driven workshops with 50+ participants on accessibility in the 3-D digitisation space.
- Invited to give the keynote event, and a workshop at the department's yearly data school.

**Organiser - Cambridge Land Justice** *October 2022 - Currently*

- Facilitated community organisation in Cambridge to lessen the town and gown divide through protests, event planning and knowledge sharing.
- Helped map Cambridge University land ownership through FOI requests data and GIS analysis.

**Researcher - Thinklab** *October 2022 - March 2023*

- Helped ideate, research and deliver a vehicle for archival research in relation to colonial legacies in Cambridge, which involved collating research from 30+ major stakeholders.

Other roles include: Vice President - Physics Society, EDI Committee - Undergraduate Representative, Student-Staff Committee - Undergraduate Representative, Peer-Assisted Study Support - Mentor, Queen Mary University - Ambassador and Decolonise Society - Visual Educator.

## SKILLS

**Programming:**
*GIS* - Intermediate at geospatial data analysis from processing to statistical analysis.
*Javascript* - Adept at Google Earth Engine and using satellite data for Earth Observation purposes.
*C++* - Intermediate at data analysis using ROOT, adept at multi-variate analysis (machine learning and neural network training), and contibutor to opensource C++ software.
*Python* - Adept at data analysis using Bunch, Matplotlib and Numpy (Array Manipulation).
Adept at *C# and Java.*
**Research:**
*Literature review* - Two years of professional and student experience in writing coherent narratives. Experienced in locating and analysing sources from a wide range of scientific and creative practices. Work as a First Reader for Khoreo Magazine.
*Big data* - Adept at error fitting, decision tree training and MC simulations for large datasets.
**Science Communication:**
*Herwig Schopper Biography* - Editor of the book 'Herwig Schopper - Scientist and Diplomat in a Rapidly Changing World' By James Gillies.
*British Conference of Undergraduate Research 2021* - Selected to deliver third-year project results to a general undergraduate audience.

**Languages:**
Fluent in Urdu and English. Breakthrough in Punjabi and Hindi.

## REFERENCES

Professor Crispin Barnes - chwb101@cam.ac.uk
Dr. Sanjaye Ramgoolam - s.ramgoolam@qmul.ac.uk