

# Abhay Sagar

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## 1 Academia

**Bachelor's Degree Natural Sciences Tripos, University of Cambridge, 07/2022**

Physics (3yrs), Mathematics (2yrs), Chemistry (2yrs), Material Science (1yr)

**Literature Research Review** produced under Dr S E Dutton of Dutton Research Group, 05/2022

*Improvements in Performance of All Solid State Batteries Through Research on Interfaces*

- Interrogated primary literature via the web and library resources.
- Developed the critical faculties to summarise, explain and present an informed view of the state of knowledge in the research field. Distinguishing between widely known/accepted views and more speculative/less developed theories.
- Presented the work in an appropriate style: in formal writing (utilising LaTeX text-processing package) and orally (in an interview presentation to professors).

**Experiments** conducted under: Dr Tijmen Euser of the NanoPhotonics Centre, 12/2021; Dr David Ward, 03/2021

*Coherence and Information in a Fibre Interferometer*

*Scanning Tunnelling Microscopy: Oxidation of Graphite: Kinetics on the Atomic Scale*

- Computed simulations from theoretical literature contrasted with experimental results.
- Collected data from niche devices to analyse with Python, but also specialist software too
- Devised experiments to: test established theory, verify equipment specifications, investigate physics of fringe cases and isolate behaviour in differing time scales
- Automated data collection and deduced suitable sampling windows to account for errors

## 2 Employment

**Tax Accountant** at Justa & Co. Certified Chartered Accountants Ltd., 02/2023

- Calculated and Submitted Capital Gain Returns for sales of properties and cryptoassets in accordance with HMRC policies and maximising allowances for tax-efficiency.
- Created a faster workflow for processing bank statements, invoices and ledgers to be coded and integrated into the existing Sage accounting software environment.
- Optimised Excel spreadsheet templates for tripling processing speed & stability and added documentation for subsequent annual adjustments to tax allowances.
- Established a server archival system for client documents received from client meetings, postage, emails and messaging apps, solving a backlog issue of 1000 clients.
- Took interim managerial role of Personal Tax department in senior manager absence in the approach to the annual tax deadline: met/interacted with the bulk of clients (25/day); was main liaison with other departments and international office, audited & revised prepared accounts and delegated accounts to staff to balance workloads & train a well-rounded team.

## 3 Computational Repertoire

- **General:** Python, C/C++, bash, Git, Office suite
- **Scientific:** MATLAB, PicoScope, ImageJ, Wolfram Mathematica, Nanosurf Easyscan, Gwyddion, Avogadro, ORCA, UVProbe
- **Skills:** Curve fitting to data, Correlation testing, 3D plotting, Function interpolation, Numerical integration, Euler & Range-Kutta methods to solve ODEs, Gauss-Jordan Elimination, Discrete Fourier Transforms, Vectorisation, Interfacing to external libraries, Revision control

## 4 Certifications & Awards

**A-Level Maths, Further Maths, Physics, Chemistry; 4A\*** from WQE College, 07/2019

Lockheed Martin Scholarship in Partnership with University of Leicester & Senior Space School

UKMT Senior Mathematical Challenge Best in Year Award & Senior Kangaroo Qualification 2018