

Tobias Bretschneider

Born on 5th April 2003 (Munich), dual citizenship (German, British), permanent resident in the UK since 2007.

Education

- 2024 - **MMath**, *University of Oxford*.
Present Focusing largely on deep learning and optimisation modules
- 2021 - 2024 **Mathematics BA**, *University of Oxford*, First Class average.
Broad selection of both pure and applied courses taken, ranging from Commutative Algebra and Geometry of Surfaces to Numerical Solutions of PDEs and Statistical Machine Learning
- Jan - Mar 2024 **Vice Chancellor's Colloquium**, *University of Oxford*.
2024 Special interdisciplinary series of lectures, classes and practicals on climate change delivered by senior Oxford Academics across various disciplines
- 2019 - 2021 **A levels**, *King Edward VI School*, Stratford, Warwickshire, 5 A*s.
Maths, Further Maths, Physics, Chemistry and German
- 2020 - 2021 **EPQ**, *King Edward VI School*, Stratford, Warwickshire, A*.
An extended project titled Detecting Exomoons via Gravitational Microlensing'
- 2014 - 2019 **GCSEs**, *King Edward VI School*, Stratford, Warwickshire, 10 9s; 1 8.
9 in Maths, Physics, Chemistry, Biology, Geography, Music, Tech, French, German and English Language; 8 in English Literature

Research Experience

- Jul - Sep 2024 **Research Project**, *Balliol College, University of Oxford*.
 - Supervised by Prof. C. Cartis (Oxford Mathematics) and Prof. S. Khatiwala (Oxford Earth Sciences).
 - Analysed Anderson Acceleration performance on Stochastic fixed point problems.
 - Developed adjusted Anderson-type algorithms for applying to 2D fluid simulations.
 - All in the context of speeding up the spin-up of Earth Science Models.
- Jul - Sep 2022 **Summer Project**, *Balliol College, University of Oxford*.
 - Developed methods for applying fractal image compression to MRI images.
 - Extended standard algorithms to 3D scenarios.
 - Computed various performance metrics on real life data.

Programming Skills

Python (Proficient), Julia (Advanced), R (Proficient), MATLAB (Proficient), LaTeX (Advanced), Linux (Advanced)

Awards

- 2020 Gold Chemistry Olympiad
- 2020 Silver Physics Olympiad
- 2020 Merit in British Mathematical Olympiad Round 1
- 2021 Gold Chemistry Olympiad

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- 2022 Prosser Exhibition Mathematics, Balliol College, Year 1 Examination Award
- 2023 Les Woods Scholarship Mathematics, Balliol College, Year 2 Examination Award

Other Experience

- Jan 2022 - **School Governor**, *Abbey CofE School*, Daventry.
- Sep 2023 Member of the board of Governors working on performance data analysis
- Jul 2022 - **Tutoring**.
 - Present Freelance mathematics tutoring from GCSE to university-level mathematics courses
- Mar 2022 - **Webmaster**, *Invariants - Oxford Student Mathematics Society*.
 - Present WordPress website management and email server installation and administration, in addition to helping with various speaker events
- Jul 2023 **Internship**, *Barr Beacon SCITT*, Walsall.
 - Mathematics teaching internship

Languages

- English: First Language
- German: Mother Tongue