Ahaan Kirloskar Saini

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Education

MSci Mathematics, *University College London (UCL)* Sep 2022 – Jun 2026

- **Predicted classification**: First Class Honours — following achievement in years 1, 2, and 3
- **Notable classes**: Spectral Theory, Functional Analysis, Measure Theory, Probability, LPDE, Multivariable Analysis

International Baccalaureate Diploma, *Dwight School London*, 43/45 points Sep 2020 – Jun 2022

Notable Projects

UCL Final Year Project — Supervised by Dr Selim Ghazouani Aug 2025 –

- Is around dynamical systems/probability. Work has so far included interpreting convergence to zero of averages of the form $\frac{1}{N}\sum_{n\in\{0,\dots,N-1\}}\cos 2\pi n^k\alpha$, $\alpha\in\mathbf{R}\setminus\mathbf{Q}$, $k\in\mathbf{N}$, in terms of the uniquely ergodic irrational rotation of the circle and skew products thereof, as well as understanding the construction of Wiener measure on $C[0,1]$ and 'convergence' in some dynamical systems to Brownian motion.

Project with Professor Prachi Mahajan at the Indian Institute of Technology Bombay Jul 2025 – Aug 2025

- Reviewed the basics of the Fourier transform on $L^1\mathbf{R}$, $L^2\mathbf{R}$. Looked at how to establish the fact that $\mathbf{C}$-valued algebra morphisms on the Banach algebra $L^1\mathbf{R}$ can be represented in terms of the Fourier transform. Studied the Paley-Weiner theorems for representing types of holomorphic functions in terms of the Fourier transform.

Lebesgue-Stieltjes measures and dual spaces to continuous functions Jun 2025 – Jul 2025

- Studied how measures and a topology interact in Radon measures, Radon measures on $[0,1]$ and $\mathbf{R}$, and nondecreasing right continuous functions. Describing the dual spaces to $C[0,1]$, $C_c\mathbf{R}$, $C_0\mathbf{R}$. Gave a final account to Dr Steven Flynn.

Galois' Theory and the algebraic closedness of C Nov 2024 – Dec 2024

- Presented to professors and peers, as part of the UCL Galois Theory class, a proof of the Fundamental Theorem of Algebra using ideas from Galois' Theory.

UCL Year 2 Research Project — Analysis May 2024 – Jun 2024

- Studied linear maps on normed spaces, researched "quasinormed spaces". Awarded, through a top-ranked presentation, participation in the UCL Mathematics poster exhibition. Poster now displayed in the UCL Department of Mathematics.

UCL Year 1 Group Research Project May 2023 – Jun 2023

- Explored tiling puzzles through Graph Theory, presented results to peers and professors.

Other Experience

- **Hong Kong ASTRI**, Intern — Projects in Healthcare AI and python. Jun 2024 – Aug 2024, Hong Kong
- **Xperitus Insurance Brokers**, Intern Aug 2023 – Oct 2023, Mumbai/London
- **UCL Transition Mentor**, Mentored incoming 1st year mathematics students. Sep 2023 – Dec 2023
- **Private Tutor** Sep 2020 –
- Kundakala CIC, Trustee Jul 2021 –

Activities

- **Languages:** Python, LaTeX; English; Marathi, Hindi (conversational); Chinese (简体，普通话) (beginner/intermediate)
- **Former National Swimmer:** 2-time British National Finalist, England East Region Champion, 2-time England East Region Bronze Medallist, Hertfordshire County Champion

References on request. Material related to some of the mentioned projects may be found on my webpage.