

ABHIMANYU PALLAVI SUDHIR

MATHEMATICS UNDERGRADUATE | IMPERIAL COLLEGE LONDON

OBJECTIVE

To learn and understand mathematics, including its sub-fields like physics, and apply these skills in my mathematical research.

SKILLS

original thinking,
conscientiousness,
scientific communication,
self-learning and working with
minimal supervision

PROFILES

Stack Exchange

physics.stackexchange.com/u/23119
math.stackexchange.com/u/78451

Github

github.com/abhimanyupallavisudhir

PERSONAL DETAILS

Personal website

abhimanyu.io

Email

AP6218@imperial.ac.uk
abhimanyupallavisudhir@gmail.com

LinkedIn

linkedin.com/in/abhimanyu-pallavi-sudhir

RESEARCH

Much of my research has focused on geometric algebra, specifically its applications in linear algebra in defining a generalised determinant for non-square transformations, on which I have written several papers in reputable journals.

More recently, I've been working in the field of fractional calculus.

(**full publication list available on p. 3**)

SELECTED AWARDS

CONFERENCES AND SCIENCE FAIRS

- **IMA "Tomorrow's Mathematicians Today" 2019** – Among four projects shortlisted for GCHQ prize
- **Intel ISEF 2015** – AMS Karl Menger Award for Mathematics for determinant-like function project
- **ICMS 2014** – "Best Paper Award" at the International Conference on Mathematical Sciences
- **IRIS National Science Fair 2014** – Gold, Top 3 Award

OLYMPIADS AND COMPETITIONS

- **IIT Math Olympiad 2017** – 6th place nationally in India
- **Regional Mathematical Olympiad 2016** – Certificate of Merit, qualified for Indian National Mathematical Olympiad (2017)

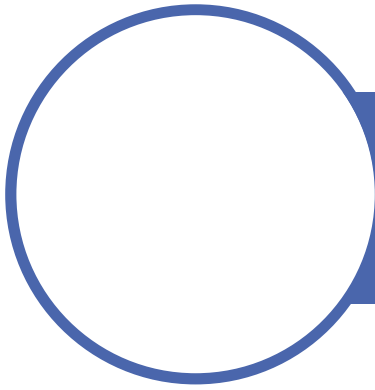
Full list: abhimanyu.io/education

PROJECTS

PHYSICSOVERFLOW

I am co-founder and an elected moderator on PhysicsOverflow, a platform for physics discussion and open peer review. We attract 3000 unique visitors and 20-50,000 page views a month, and have received contributions from several noted physicists, including a Nobel Laureate.

PhysicsOverflow.ORG | en.wikipedia.org/wiki/PhysicsOverflow



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THE WINDING NUMBER

I created and currently make content for The Winding Number, an online resource for undergraduate-level mathematics and physics hosted at blogger. See TheWindingNumber.blogspot.com.

TEACHING

I taught several classes for a module on relativity to my high-school physics class, and lectured my high school Theory of Knowledge class on the philosophy of mathematics and logical positivism.

LEAN

Lean is a functional programming language developed by Microsoft Research that acts as a mathematical proof checker. I contributed proofs of lemmas regarding [irrational numbers](#) to the project's mathematics library on Github.

EDUCATION

MSCI • 2022 (CURRENT) • IMPERIAL COLLEGE LONDON

COURSE: G103 – Mathematics MSci

MODULES: (to be added)

IB DIPLOMA • 2018 • DHIRUBHAI AMBANI INTERNATIONAL SCH

SCORE: 44/45 points incl. 3/3 bonus, Further Mathematics HL: 7/7 points

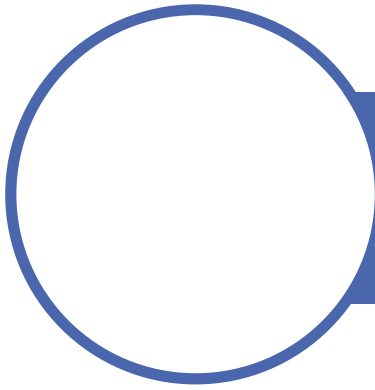
MODULES AND COURSES TAKEN

(to be added)

OTHER SKILLS

Programming languages: proficient in Python, Matlab, Processing, JS and Lean (a functional programming language). Some interesting applets I've written are available on my Github profile.

Languages: English, Kannada, Hindi; wrote the official Kannada translation of MathJax



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PUBLICATION LIST

FRACTIONAL CALCULUS

Abhimanyu Pallavi Sudhir, "The generalised Cauchy derivative as a principal value of the Grünwald-Letnikov fractional derivative for divergent expansions," (2018) [arXiv:1809.08051], arxiv.org/abs/1809.08051

MATRIX THEORY AND LINEAR ALGEBRA

Abhimanyu Pallavi Sudhir, "On the Determinant-like function and the Vector Determinant," *Advances in Applied Clifford Algebras*, (2014) 24-3: 805-807, link.springer.com/article/10.1007/s00006-014-0455-3

Abhimanyu Pallavi Sudhir, "On the Properties of the Determinant-like function" (presented at *International Conferences on Mathematical Sciences*, Chennai, July 17-19, 2014).

Abhimanyu Pallavi Sudhir, "Defining the Determinant-like function for m by n matrices using the exterior algebra," *Advances in Applied Clifford Algebras* (2013) 23-4: 787-792, link.springer.com/article/10.1007/s00006-013-0416-2

Abhimanyu Pallavi Sudhir, "The Representation of Matrices in unit vector notation," *Journal of Mathematics Research* (2012) 4-4: 86-91, dx.doi.org/10.5539/jmr.v4n4p86

MISCELLANEOUS

Abhimanyu Pallavi Sudhir and Rahel Knoepfel, "PhysicsOverflow: A postgraduate-level physics Q&A site and open peer review system," *Asia-Pacific Physics Newsletter* (2015) 4-1: 53-55, dx.doi.org/10.1142/S2251158X15000193