

Muhammad Naeem

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Educational Qualifications

Quaid-i-Azam University, Islamabad, Pakistan (21/09/2021 – 07/12/2023)
Master of Philosophy in Mathematics
CGPA: 3.70/4.00
Field of Study: Pure Mathematics
Major Courses: Algebraic Geometry & Statistical Learning Theory, Lie Algebras, Banach Algebras, Semigroup Theory, LA-Semigroups, Introduction to Algebraic Cryptography, Algebraic Coding Theory, Theory of Hilbert Spaces.

University of Narowal, Punjab, Pakistan (18/12/2017 – 28/07/2021)
Bachelor of Science in Mathematics
CGPA: 3.57/4.00
Major Courses: Calculus, Discrete Mathematics, Topology, Functional Analysis, Real Analysis, Complex Analysis, Vector & Tensor Analysis, Differential Geometry, Linear Algebra, Number Theory, Group Theory, Theory of Rings and Fields, Module Theory, Measure Theory and Lebesgue Integration, Modeling and Simulation, Ordinary Differential Equations, Partial Differential Equations, Numerical Analysis, Integral Equations, General Theory of Relativity, Methods of Mathematical Physics, Introduction to Statistics, Introduction to Probability Distributions, Mathematical Statistics. Programming Languages for Mathematicians(C++), Computing Tools for Mathematicians(MATLAB).

RESEARCH WORK

- Thesis Title:** *Construction of Ideals and Conjugacy Classes of Solvable Lie Algebras*
My thesis was based on implementing algorithms related to the ideals and conjugacy classes of solvable Lie algebras using the computational platform, Maplesoft. The main purpose of this research was to link the gap between theoretical developments in Lie algebra theory and useful computational tools. I have smoothly transferred abstract ideas and complex computations into practical software with MapleSoft’s computational abilities, making it easier to compute ideals efficiently and identify conjugacy classes in solvable Lie algebras. The algorithms developed in this research proved to be precise and effective while dealing with a variety of solvable Lie algebraic structures.
- I am currently serving as a junior research assistant of Prof. Dr. Umar Hayat in the area of pure mathematics. I've reviewed some articles on Lie theory and am actively engaged in working on some research projects like “Construction of all Positive Roots and Weyl Group Elements - from a Dynkin Diagram” and “Conjugacy Classes in Semi-Simple Lie Algebras”.

HONORS & ACHIEVEMENTS

- IELTS – 6.5 (Speaking-7.0, Listening-7.0, Reading-6.0, Writing-6.5)
- Recipient of “Prime Minister Laptop” in undergraduate.
- MPhil Merit based Scholarship, Quaid-i-Azam University, Islamabad, Pakistan.
- PEEF Scholarship, Government of Pakistan.

SKILLS

- During my undergraduate studies, I acquired programming proficiency through coursework in Programming Languages (C++) and Computing Tools for Mathematicians (MATLAB).
- I have got essential MATLAB and basic Python programming skills in training held at Department of Mathematics, Quaid-i-Azam University, Islamabad, Pakistan.
- In my master’s research work, I independently acquired proficiency in Maplesoft which I used to implement the algorithms on ideals and conjugacy classes of solvable Lie algebras.
- Technical skills: Communications software (Zoom, Teams), Coding (LaTeX & Overleaf), Microsoft Office Suite (Word, PowerPoint, Excel).

TEACHING EXPERIENCE

Quaid-i-Azam University, Islamabad, Pakistan (09/2024 – 01/2025)
Visiting Lecturer
Teaching courses including quantitative reasoning and Linear algebra to undergraduate students.

Jinnah Institute of Informatics, Commerce & Science, Rawalpindi, Pakistan
(04/2024 – Present)
Mathematics Lecturer
Teaching courses including Discrete Mathematics, Calculus & Analytical Geometry, Linear Algebra, Multivariate Calculus, Business Mathematics, Business Statistics, and Probability & Statistics.

Aspire Group of Colleges, Narowal, Pakistan (12/2020 – 07/2021)

Mathematics Teacher

Taught College mathematics to intermediate students and 12 out of 30 students obtained the highest grade (A+) in BISE Gujranwala Board.

CONFERENCES AND SEMINARS

- Participant - 23rd International Pure Mathematics Conference, Islamabad, Pakistan, 26-28 August 2023
- Participated as an organizer in the International Conference on Mathematical Advances and Applications, Quaid-i-Azam University, Islamabad, Pakistan, 2022
- Participant - Abdus Salam Science Festival, National Center for Physics, Lahore, Pakistan, 2022
- Participant - Seminar on Semisimple Algebras of Vector Fields in C^n , Quaid-i-Azam University, Islamabad, Pakistan, 2023
- Participant - Seminar on Simple Math Behind Complex Machines: The Role of Mathematics in Driving Sophisticated Robots, Quaid-i-Azam University, Islamabad, Pakistan, 2024

VOLUNTEER WORK

QMS M.Phil Coordinator

I served as the "M.Phil Coordinator" of the Cabinet for the Quaidian Mathematical Society at Quaid-i-Azam University during the 2021-2022 tenure. Being a student, I worked with my team to manage the finances and to invite some international mathematicians to participate in an International Conference on Mathematical Advances & Applications.

Event Organizer

I served as an "Event Organizer" in the Department of Mathematics at the University of Narowal during my Bachelor's degree.

WORKSHOPS & PRESENTATIONS

Instructor

Selected as a Maple instructor by Quaidian Mathematical Society at Department of Mathematics, Quaid-i-Azam University, Islamabad, Pakistan.

Presenter

Conducted an in-depth session on *Introduction to Lie algebras* at Quaid-i-Azam University, Islamabad, Pakistan.

HOBBIES / INTERESTS

Poetry reading and writing: I have a passion for reading and writing poetry, with a focus on exploring themes and emotions through the medium of the Punjabi language.

Singing: I won a singing competition at Quaid-i-Azam University, Islamabad, Pakistan.

Hiking: I am a passionate hiker with a deep love for exploring the great outdoors and conquering new trails.