Prajit Adhikari

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EDUCATION

Thapathali campus, Institute of Engineering, Tribhuvan University. April 2024
Bachelor of Engineering in Industrial Engineering. Thapathali

- Top 5% of the class. **78.85/100**
- **Relevant Coursework:** Statistics, Operation Research, Mathematics(Calculus, Linear Algebra, Analysis), Economics, Numerical Methods with MATLAB, Project Management, Supply Chain Management, Finite Element Analysis, Theory of Machine, C Programming and FORTRAN.

RESEARCH EXPERIENCE

Quantitative Researcher at a Private Family Office, Singapore (Remote). *Feb 2024 - April 2024*

- Conducted research on mean reversion and momentum-based trading strategies, increasing system efficiency by 15% and improving strategy ROI by 3%.
- Developed and backtested data-driven investment strategies, optimizing portfolio performance and reducing risk exposure by 7.3%.

Operations Research Engineer at Lalitpur Metropolitan Government *Jan 2024 - April 2024*

- Optimized waste transshipment routes using Python, GIS, and open-source tools, enhancing cost-effectiveness and sustainability in waste management.
- Designed waste segregation plants and workshops with ERP integration, improving waste processing efficiency and informing policy decisions through statistical analysis.

OptiWaste: Decision Support System for Waste Management (Seminar Presentation) *Jan 2024 - March 2024*

- Developed "OptiWaste" to optimize waste management using clustering algorithms and route optimization with time windows.
- Built model to streamline complex waste management processes taking inspiration from similar regions.
- Contributed research on integrating theoretical models such as Traveling Salesman Problem, Minimal Spanning Trees and Convex Hull theorems with practical applications in waste management.

WORK AND OTHER EXPERIENCE

NLP Researcher & SQL/BI Developer, California *Gavie AI & CloudProAI (Part-time, Remote)|**July 2024***

- Built and deployed NLP models on Azure to optimize CRM processes for small-scale businesses, reducing data processing time by 20% and improving client engagement through faster response times.
- Streamlined database management with SQL, cutting query execution time by 25%, and developed custom BI reports for HR and performance management.
- Led the migration of databases from Microsoft Access to a web-based platform, resulting in 50% improved system performance, reduced downtime, and lowered operational costs for small businesses.

TEACHING EXPERIENCE

Mathematical Association of Nepal, Executive Member *June 2019- June 2025*

- Taught algebra, combinatorics and number theory of matheletes from Nepal and prepared handouts on lectures both in person and virtually and graded the papers.
- Developed national math contest problems and provided training in number theory, geometry, algebra, and combinatorics, enhancing participant performance in national competitions.
- Organized nationwide math events, raised $10,000, and boosted online engagement by 40% through content creation and social media management for the association's website, and discord by creating bots and static websites.

Research Training for Mathematical Modeling *Jan 2023, 2024*

- Lectured on differential equations, linear programming and statistical analysis as a tool for mathematical modeling and discussed open world problems interactively with high school students.
- Moderated lecture series from Chinese high school researchers on mathematical modeling.

Online & Offline Tutoring via Zoom and Google Meet *2022 - 2024*

- Tutored college students on college algebra, calculus I, II and III, linear algebra, statistics, differential equations, discrete maths and theory of computation.
- Hosted free live classes on discord servers and helped people on engineering and maths servers.

EXTRACURRICULAR ACHIEVEMENTS AND ACTIVITIES

Winner of THE PRACTICAL OPTIMIZATION SPRINT *2024*

Advisor at International Mathematics Modeling Competition *2023 & 2024*

- Organized the National Mathematics Modeling Competition and guided teams in developing mathematical models for real-world problems.s
- Mentored participants, offering feedback to improve their analytical and modeling skills, and facilitated workshops to encourage innovative thinking.
- Achieved two Honorable Mention in 2023 and one Honorable Mention in 2024.

Observer at International Mathematics Olympiad, UK *2024*

- Engaged with international teams and experts, enhancing understanding of global mathematical standards.
- Networked with global mathematics leaders, enhancing professional connections and deepening expertise.

Full ride scholarship under Nepal Government for engineering degree *2019*

Participation in International Mathematics Olympiad *2018 & 2019*

- Competed in the IMO, representing Nepal in 2018 (Romania) and 2019 (UK).
- Achieved qualification through national rounds, earning gold medals in national competitions.

Excellence in other national olympiads and quiz bowls *2016 - 2018*

- Achieved top honors in various national-level olympiads and quiz competitions, demonstrating a strong aptitude for mathematics and general knowledge.

PUBLICATION

- Chenyue Fan, Ayesha Abdul Qadir Memon, Prajit Adhikari, Muhammad Osama, and Calvin R. Wei. "REVISITING THE SARS-COV-2 MAIN PROTEASE: A 2023 IN SILICO ODYSSEY IN SEARCH OF POTENTIAL INHIBITORS". Journal of Population Therapeutics and Clinical Pharmacology, vol. 30, no. 18, Oct. 2023, pp. 1032-49, doi:10.53555/jptcp.v30i18.3232.
- Advanced Mathematics for High School Students- Nepal *Work in Progress*
- OptiWaste: Decision Support System for Waste Management *Submitted for Review in August 2024*

CONFERENCES

- **AI Conference in Nepal:** Invited as guest by Ministry of Education, Science and Technology.
- **Mathematical and Biological Research Conference:** Participated representing Mathematical Association of Nepal.

PROJECTS

Eddy Current Separator Prototype *July 2023-Sep 2023*

- Designed and deployed a functional prototype for effective waste segregation: fabrication of conveyor belts, welding, brazing, milling and assembly.
- Utilized Fusion 360 and SolidWorks for design and simulation.
- **Technical Skills:** Mechanical and electrical engineering principles.

Investment Dashboard and Simulation of SIP *June 2022- July 2022*

- Developed an interactive investment dashboard in Excel, providing insights into ROI and optimizing portfolio strategies using efficient frontier analysis.
- Conducted Monte Carlo simulations with Oracle Crystal Ball, projecting diverse investment outcomes to support strategic decision-making.

TECHNICAL SKILLS

Languages: Python, MATLAB, R, SQL, Julia, C.

Tools & Frameworks: Google OR tools, AMPL, Unix, Flask, MySQL, Pytorch, NumPy, Pandas, Oracle Crystal Ball, Microsoft Suite, MySQL, RStudio, QGIS, PVsyst.

Developer Tools: Excel, VS Code, Git, Tableau, PowerBI, Azure Data Studio, Postman, Notion.

REFERENCES

Er. Sudan Neupane - Head of Department of IE, 2019-2021 neupanesudan@ioe.edu.np

Binod Prasad Pant - Assistant Professor and HoD at KUSOE; President, MAN binod.pant@ku.edu.np