MADHAV KHANAL

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EDUCATION

Rollins College, Winter Park, FL
- BA in Mathematics and Computer Science with a Minor in Physics and Data Analytics (Intended)   2027
- *Awards:* Alfond Scholarship (**$80k per year**, selected as 5 out of 10,000+ applicants)
- Cumulative GPA: 4.0/4.0

AWARDS :

National Delegate, 53rd International Physics Olympiad	2023
Gold Medal, International Youth Math Challenge	2023
Honorable Mention, International Math Modelling Challenge	2023

Certifications: Data Analysis Using SPSS, Python Data Science, Machine Learning from Stanford, Qisit Global Summer School 2024, Algorithms from Stanford, Infectious Disease Modelling from Imperial College London,

TECHNICAL SKILLS :

- *Computer Languages:* Python, R, SQL, Java, HTML, CSS, JavaScript
- *Hard Skills:* Machine Learning, Deep Learning, Math Modelling, Stochastic Modelling, Artificial Intelligence, Web Development, Frontend Development, Data Analytics, Business Analysis, Quantum Computing, Statistical Analysis
- *Soft Skills:* Presentation, Speech, Teaching, Leadership, Team-Work

EXPERIENCE

IT Help Desk Assistant, Rollins College, WinterPark, Florida   11/24-Present
- Helped students and staff with day-to-day technical problems
- Conducted sessions on the proper utilisation of IT resources
- Provided excellent customer service and satisfaction

Programming Director, WPRK Radio Station**,** Rollins College, WinterPark, Florida   11/24-Present
- Interviewed volunteers and co-ordinated on-air schedules
- Taught usage of audio devices and developed communication and interpersonal skills by hosting different people

Software Engineering Intern, MeroShiksha e-Learning**,** Kathmandu, Nepal   06/23-06/24
- Developed REST APIs using Node.js and Express to collect and process user data from 10,000+ active users
- Implemented SQL and NoSQL (MongoDB) database solutions to track user interactions, enabling data-driven content recommendations and personalised learning paths.
- Built machine learning-based recommendation algorithms with Python and sci-kit-learn, achieving a 15% improvement in content engagement.
- Automated data pipelines using Apache Kafka for real-time data streaming and processing, reducing reporting time by 30%.

Quantum Computing Researcher, Incubate, Cambridge, MA   06/23-09/23
- Studied quantum algorithms under a scientist at CERN and implemented them in Qiskit
- Solved the General Planar Graph Coloring Problem using Grover's Algorithm
- Reduced the time complexity of Planar Graph Coloring Problem to $O(\sqrt{N})$

Machine Learning Research Assistant, Tribhuwan University, *Kathmandu, Nepal*   05/22-06/23
- Developed deep learning models (NNs) to estimate infection rates in a compartmental COVID-19 model using 10,000+ data points.
- Applied Bayesian inference and MCMC for parameter estimation with a 95% confidence interval.
- Tuned model using grid search and achieved a 12% increase in prediction accuracy over baseline methods

PROJECTS

Chess   10/24-11/24
- Created dynamic chess board and pieces and deployed installable .dmg app
- Added checks and checkmate logic and Integrated reinforcement learning to train AI opponent
- Utilised Q-Learning and Minimax Algorithms to improve decision making
- Error handling for illegal moves

COVID Mortality Predictor Neural Network
- Built a deep learning model using TensorFlow in Python
- Trained with 1M+ real patient data
- Predicted the COVID mortality based on age, gender and so on with 95%+ accuracy

AI-Powered Self-Care Companion
- Built a self-care AI with a chat interface and real-time communication
- Trained the AI on books, articles and literature on well-being
- Integrated OpenAI API for real-time answers to address when the bot doesn't find answers on the knowledge base

EXTRACURRICULARS

Habitat for Humanity, St. Petersburg, FL   09/24-Present
- Helped in the construction of houses for the homeless

Abhichal Karmayodha, a novel on homeless children   09/17-08/20
- Published a novel advocating the rights of homeless children
- Sold 10,000+ copies