Rajesh Karra | Undergrad Physics Student

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rajeshkumarkarra (Rajesh Karra) · GitHub

https://rajeshkarra.academia.edu

https://rajeshkumarkarra.github.io/

Professional Profile

Highly motivated recent graduate with a Bachelor's degree in Mathematics, Physics and Computer Science from Osmania University seeking admission to the Master's program in Theoretical Physics at your University. Eager to leverage my strong foundation in programming and fundamentals of Physics to gain expertise in Theoretical Physics. Aiming to become a research scientist and contribute to the Theoretical Physics and Quantum Computing.

One pivotal experience that ignited my passion for theoretical physics was my participation in the IBM Qiskit Advocate programs, where I had the opportunity to sharpen my skills in quantum computing.

Core Skills

Physics/Quantum Computing(Beginner)

- IBM Qiskit
- FORTRAN
- ROOT Library(CERN)
- Haskell

Computer Science(Beginner)

- Python, Django, Java, Scikit-Learn
- Pandas, NumPy, Matplotlib
- JupyterLab, Heroku, Git, aws
- Linux, Machine Learning

Education

Masters(Pursuing) Theoretical Physics with Advanced Research | Sep 2024 - Sep 2026 | University of Hertfordshire, UK.

Modules included:

* Quantum Field Theory
* Relativity and Field Theory
* General Relativity
* Groups and Representations
* Lagrangian Dynamics
* Statistics and Analysis
* High Energy Astrophysics
* Physics of Elementary Particles.

Bachelor of Science (hons) - (First-class - 7.8) | Aug 2021 - June 2024 |
Osmania University | Hindi Mahavidyalaya |
Modules included:
* Physics - 70%
* Mathematics - 60%
* Computer Science - 60%

Final year project: "Quantum optimization challenge - Get your starship out of a sticky situation!"
This paper presents a novel application of the Traveling Salesman Problem (TSP) in a time-critical scenario: optimizing debris collection by an autonomous drone during a starship's approach to a black hole. Large debris poses a catastrophic collision threat, necessitating efficient collection along the shortest path.Utilizing precise distance measurements between debris pieces, we formulate the mission as a TSP instance. The acknowledged NP-completeness of TSP highlights the inherent computational challenge. However, by drawing a parallel to the classic traveling salesman scenario, we demonstrate the broader applicability of this problem to various logistical and optimization tasks beyond space exploration.This research investigates the potential of IBM Quantum's QISKIT platform to solve the formulated TSP for debris collection. By exploring the capabilities of quantum computing for this real-world problem, this work aims to contribute to the development of efficient solutions for time-sensitive path optimization within a critical spacefaring context.

4 x A Levels / HSC **(grades AABC) - 57.33%**
Board of Intermediate | SAV & NV Junior college |
Subjects included:
* Mathematics - C
* Physics - B
* Chemistry - A
* Biology - A

12 x GCSs/SSC **(grades A-C) - 57.16%**
Board of Secondary Education | Thakshashila Vidya Mandir
Subjects included:
* Mathematics
* Physical Science
* Biological Science
* Social Studies

Hobbies

- Networking
- Reading professional books or articles
- Learning new skills
- Taking online courses
- Joining professional organizations

- Creating or updating a portfolio
- Participating in mentorship programs
- Building a website

References

Keerthi
Asst. Professor Physics
[Hindi Mahavidyalaya college](#), affiliated to [Osmania University](#)
+91 040-27676330 | info@hindimahavidyalaya.org
Keerthi was my Asst. professor and my faculty for Physics in my Bachelors

Rama devi
Asst. Professor Mathematics
[Hindi Mahavidyalaya college](#), affiliated to [Osmania University](#)
+91 040-27676330 | info@hindimahavidyalaya.org
Rama devi was my Asst. professor and my faculty for Mathematics in my Bachelors.

Avinash Pal Lidlaan
Asst. Professor Computer Science & Applications
[Hindi Mahavidyalaya college](#), affiliated to [Osmania University](#)
+91 040-27676330 | info@hindimahavidyalaya.org
Mr. Avinash was my Asst. professor and my faculty for Computer Science & Applications in my Bachelors