Manas Vishal

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EDUCATION

University of Massachusetts Dartmouth
PhD, Computational Sciences and Engineering (Theoretical Physics)   **Expected May 2025**
Award: Distinguished Doctoral Fellowship | GPA: 4.0

Indian Institute of Science Education and Research Kolkata
Bachelor and Master of Science, Physics   **June 2021**
Award: Merit-based scholarship, GPA: 3.5

Relevant coursework: Linear algebra, Statistics, Mathematical Modeling, Data Mining, Machine Learning, Numerical Methods and Algorithm, Computational Physics, High Performance Computing

EXPERIENCE

Center for Scientific Computing and Data Science Research, UMass Dartmouth
Research Assistant   **Sep 2021 - Present**
- Formulated a robust mathematical model to simulate astrophysical binaries.
- Developed a codebase with new algorithm from scratch for numerical simulations of astrophysical binaries using high performance mathematical models.
- Prototype MATLAB code runs 90 times faster and 10^8 times more accurate than current state of art
- Assisting junior researchers to develop quantitative and analytical skills for black holes simulations.

Albert Einstein Institute, Max Planck Institute of Gravitational Physics, Potsdam, Germany
Data Scientist   **Jun 2023 – Jul 2023**
- Accelerated the simulation time of binary black holes using a data driven approach
- Analyzed time series datasets in frequency domain for a faster and efficient surrogate approach.

NSF Careers, Yale Center for Research Computing
High Performance Computing Student Facilitator   **May 2023 – Jun 2023**
- Translated a prototype MATLAB code to an efficient C++ codebase
- Benchmarked C++ codebase across multiple platforms.
- Implemented unit and regression tests to the codebase

Numerical Relativity Summer School, ICERM, Brown University, Providence, Rhode Island
Python Programmer and Data Analyst   **Aug 2022**
- Analyzed the time series data to extract relevant physics information
- Won the first prize for visualizing the volumetric data as AR/VR simulation using python modules.

PUBLICATIONS and PRESENTATIONS
- First author paper on highly efficient simulation of astrophysical objects (https://arxiv.org/abs/2307.01349) [with referee]
- Invited talk at MIT on September 11, 2023
- Invited talk at Infinity on a Gridshell workshop held in Copenhagen, Denmark
- Presented my research on astrophysics simulations at Albert Einstein Institute in Potsdam, Germany

AWARDS

Distinguished Doctoral Fellowship
University of Massachusetts Dartmouth   **Sep 2021**
Highest fellowship offered to only 10 students by UMass Dartmouth that aided my doctoral research in black hole physics

Kishore Vaigyanik Protsahan Yojna Fellowship
Government of India   **Aug 2017**
Fellowship granted to top 1% nationally of highly motivated and skilled students to pursue a career in pure sciences

Inspire Award,
Department of Science and Technology, India   **Aug 2016**
Scholarship to continue a career in basic sciences

SKILLS

Programming Languages: Proficient in Python, C, C++, R, HTML & TeX and Intermediate in Julia, SQL & PHP
Computer Software: MATLAB, Mathematica, Origin, Gnuplot, ImageJ, LaTeX, Android Studio

LEADERSHIP EXPERIENCE
- Organize the first ever hackathon of University of Massachusetts Dartmouth on April 13, 2024.
- Led the multimedia and web technology team of Inquivesta, the largest science fest of India. Moreover, developed the android application for the event that handled transactions.