Rishabh **Solanki**

Graduate Research Assistant

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Summary

Skilled developer with experience in numerical simulations, machine learning, and data analysis. Strong programming skills in Fortran, Python, and Java, and familiarity with machine learning frameworks such as scikit-learn. Proficient in parallel programming and performance optimization. Strong team player with experience collaborating on a myriad of issues. Looking for a role where I can utilize my skills and make meaningful contributions.

Work Experience

UMass Dartmouth

MA, USA

Graduate Research Assistant

Sep. 2021 - present

- Developed, designed, and implemented novel modules for an approximate Riemann solver using Python and Fortran. This involved researching and exploring different approaches, and adapting and optimizing the modules to meet the requirements of the project.
- Contributed to the design, testing, code review, and documentation of numerical solvers as part of a product team, improving the reliability and functionality of the solvers.
- Demonstrated proficiency in parallel programming, using techniques such as MPI and multi-threading to model large scale simulations using thousands of cores, yielding realistic and accurate results.
- Applied knowledge of Numpy/Scipy, Pandas, and Scikit-Learn to analyze large log data and optimize the performance of numerical solvers, resulting in faster run times and more efficient solutions.
- Worked in a team environment, contributing to the design, testing, code review, and documentation of numerical solvers.

Instruments Research and Development Establishment

Dehradun, India

Research Intern

Aug. 2018 - Sep. 2019

- As a research intern at Instruments Research and Development Establishment, I worked with a team to develop an end-to-end process/pipeline that included data collection, harmonization, and visualization using Java and MATLAB.
- Demonstrated ability to work effectively in a team environment and to apply technical skills to solve real-world problems.

Education

University of Massachusetts Dartmouth

MA, USA

M.S. in Physics

Sep. 2021 - May. 2023

- Designed, managed, and taught recitation and laboratory classes consisting of 100+ students in the undergraduate series, Physics for Science and Engineering.

University of Petroleum and Energy Studies

Dehradun, India

B.S. in Aerospace Engineering

July. 2014 - May. 2018

- Developed a machine learning-based Java applet that trained itself in real-time on orbital data, leading to the creation of a predictive model for collision detection. This involved researching and implementing machine learning algorithms, and using techniques such as feature engineering and model selection to optimize the model's performance.

Skills

Programming	Python, Java, Fortran, SQL
Frameworks	Numpy, scikit-learn, Pandas, Matplotlib
Software & Tools	MATLAB, Git, MPI, OpenMP, multi-threading

Technical Projects

Supernovae Classifier

MA, USA

UMass Dartmouth

Jan. 2022 - present

- Implemented machine learning and numerical computing techniques in Python to classify supernovae, including reading FITS file data, extracting features and labels, training and testing a neural network classifier.