Rishabh **Solanki**

Graduate Research Assistant

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Summary

Physics graduate passionate about solving complex problems using data. Highly-capable leader, led multiple research projects to completion. Proficient in a range of modern technologies including Python, Java, machine learning and Linux. Interested in learning new technologies and tools. Honest, dependable and enjoys working independently or within a team setting. Patient, respectful and productive.

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.
- Optimized the flow and architecture of various numerical solvers to provide faster run time. Used SLURM to handle batch submissions.
- Built fully automated CI/CD pipelines using Github Actions which streamlined the development process.
- Wrote Python scripts to analyze large log data, 100 million+ lines, resulting in efficient solutions.
- Proficient in distributive computing and massively parallel programming including MPI and multi-threading. Modeled large scale simulations which used thousands of cores to achieve realistic outcomes.

Instruments Research and Development Establishment — *Dehradun, India*

Research Intern — *Aug. 2018 - Sep. 2019*

- Co-developed end-to-end process/pipeline spanning data collection, harmonization, and visualization using Java and MATLAB.
- Resolution rates for various versions were visualized periodically using Tableau.
- Provided tracking ability for each entity to the stakeholders leading to a better client satisfaction.

University of Petroleum and Energy Studies — *Dehradun, India*

Undergraduate Researcher — *Sep. 2017 - Aug. 2018*

- Developed a machine learning based Java applet that trained itself in real-time on orbital data which led to a predictive model for collision detection.
- Optimized the raw data set for better feature recognition using Tensorflow which resulted in more accurate and precise collision predictions.

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*

- Winner of the 2018 UPES annual Java coding challenge.

Technical Skills

Programming Python (including NumPy, SciPy, Matplotlib, Django, Tensorflow), Java, Fortran, , HTML

Software & Tools FLASH, MESA, Git, LaTeX, Bash, Slurm, Docker, MATLAB

Outreach

2022 **Coordinator**, Graduate Student Senate, UMass Dartmouth — *USA*

2021 **Member**, Society of Physics Students, UMass Dartmouth — *USA*

2018 **Organizer & Co-director**, Space Club, UPES — *India*