Rajeev Jain

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Summary

Highly motivated developer, researcher and manager with expertise in high-performance computing, scientific software development and data analysis. Proven ability to manage complex projects and deliver results. Seeking to leverage skills for a career in the financial industry. Open to relocation and does not require sponsorship.

Experience

CASE Staff At-Large, The University of Chicago – Chicago IL, USA — Sept. 2023 to present

- Joint appointment for research collaboration between Argonne and UChicago
- Collaborated on the development of a scalable workflow suite aimed at facilitating the comparison of various deep learning models for cancer drug response prediction across diverse hyperparameters and datasets

Principal Specialist, Research Software Engineering, Mathematics and Computer Science (MCS), Argonne National Laboratory – Chicago IL, USA — Jan. 2018 to present

- Spearheaded the development of CANDLE/Supervisor, a pioneering workflow framework for machine learning applied to cancer research, serving as a cornerstone for the Exascale Compute Project (ECP) called CANDLE, recognized with the prestigious R&D 100 Award in 2023
- Presented research at the prestigious Supercomputing conference in 2021 (peer-reviewed). The work focused on developing an RNA-seq classification method using abstention classifiers to handle noise in gene expression data. This approach identified potential cancer-related genes through counterfactual analysis, potentially serving as a stepping stone for further discoveries in cancer research
- Led the implementation of cutting-edge asynchronous I/O (HDF5) and compression functionalities (SZ3/ZFP) for the FLASH-X multiphysics simulation software, acknowledged with the R&D 100 Award in 2022. Over 20% performance improvement in the I/O-bound simulations
- Actively contributed design and project management of UXarray, a Python library specializing in managing unstructured climate and weather data. Presented the project at the SciPy conference in 2023

Software Development Specialist, MCS, Argonne National Laboratory – Lemont IL, USA — Jan. 2011 to Jan. 2018

- Developed coupling software as part of the Urban ECP, facilitating the integration of building energy models with high-fidelity weather data for the downtown Chicago area. This collaborative effort resulted in a popular research paper, it involved extensive teamwork with 12 researchers across 3 institutions
- Led RGG MeshKit development - a C++ toolkit for reactor geometry mesh generation. This project laid the foundation for RGG's commercialization with Kitware Inc. (Small Business Innovation Research (SBIR) Phase I & II)
- Streamlined nuclear reactor core design with RGG software, reducing model generation time from weeks to hours

Pre-doctoral Appointee, MCS, Argonne National Laboratory – Lemont IL, USA — Aug. 2009 to Jan. 2011

- Developed the core functionality of MeshKit, a directed acyclic graph (DAG) mesh generation toolkit

Research and Teaching Assistant, Civil Engineering in the School of Sustainable Engineering and the Built Environment, Arizona State University – Tempe, AZ, USA — Aug. 2007 to July 2009

- Designed blast-resistant structures using FEM-based shape optimization on a high-performance computing cluster

Project Engineer,, Wipro Technologies – Bangalore/Hyderabad, India — May 2006 to June 2007

- Rapidly acquired Java and SAP skills, contributed to production-ready Java code and fixed issues in the SAP-SD.

Technical Skills

Languages: Python, Fortran, C++, shell scripting, R, SQL, Java

Software: Visual Studio, Git, Apptainers, JIRA, Confluence, Bitbucket, Jenkins, Docker, AWS

Education

The University of Chicago, MS in Computer Science — June 2020

- Courses in Python, Databases, Networks, Algorithms, Computer Architecture, Blockchain and Cloud Computing

Arizona State University, MS in Structural Engg. (Minor Computer Science) — July 2009

IIT Dhanbad, India, BT in Mechanical Engineering — May 2006