Sajid Ali

PhD Candidate
Applied Physics
Northwestern University

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Overview

Objective — To continually enhance my expertise in computational science so as to accelerate development of reusable scientific software and maintain software infrastructure for high performance computing.

Summary — Extensive experience in computational physics across various domains including modeling, simulations, inverse problems. Skilled in scientific software engineering and management of software stacks on clusters.

Education

2016–Present — **Northwestern University**, *Evanston, IL*,
Ph.D., Applied Physics,
Computational x-ray optics, Technique development for X-ray Microscopy.

2011–2016 — **IIT Madras**, *Chennai, India*,
Masters of Tech. in Microelectronics and VLSI Design Electrical Engg.,
Master's Thesis : Impurity induced magnetism in Graphene.

2011–2016 — **IIT Madras**, *Chennai, India*,
Bachelors of Technology, Electrical Engg.,
Minor: Physics.

Professional Experience

Summer 2020 — **WJ Cody Associate**,
Mathematics and Computer Science Division, Argonne National Laboratory, PI: Dr Wendy Di.
- Improving the performance and scalability of a tomography reconstruction code written in C++/PETSc.

Research Experience

2018–Present — **X-Ray Wave Propagation**,
X-Ray Microscopy Group, Northwestern University, PI: Prof Chris Jacobsen.
- Developed parallelized computer codes for large scale wave propagation.
- Implemented finite difference based wave propagation in PETSc.

Publications

2020 — Comparison of distributed memory algorithms for X-ray wave propagation in inhomogeneous media Sajid Ali, Ming Du, Mark F. Adams, Barry Smith, and Chris Jacobsen Optics Express Vol. 28, Issue 20, pp. 29590-29618

2020 — Benchmark informed software upgrades on Quest, Northwestern's HPC cluster Sajid Ali, Alper Kinaci, and Alexander John Mamach In Practice and Experience in Advanced Research Computing (PEARC '20), Association for Computing Machinery (526–529)