

# Rajeev Jain

Chicago, IL

✉ [rajeeja@gmail.com](mailto:rajeeja@gmail.com)    ☎ (312) 725-3380    [in linkedin.com/in/rajeeja](https://www.linkedin.com/in/rajeeja)  
G [Google Scholar](https://scholar.google.com/citations?user=rajeeja)    [github.com/rajeeja](https://github.com/rajeeja)    [rajeeja.github.io](https://github.com/rajeeja)  
🐦 [twitter.com/rajeeja](https://twitter.com/rajeeja)    [Argonne Profile](#)

## Experience

### CASE Staff At-Large

*The University of Chicago (UChicago)*

Sep 2023 – Present

*Chicago, IL*

- Joint appointment supporting computational cancer research initiatives between Argonne National Laboratory (ANL) and UChicago.

**Principal Specialist, Research Software Engineering (formerly Research Software Developer)** Aug 2009 – Present

*Mathematics and Computer Science Division, Argonne National Laboratory (ANL)*

*Lemont, IL*

- Delivered reliable research software across cancer data science, climate computation, multiphysics simulation, urban systems, and reactor modeling.
- Partnered with domain scientists to turn prototypes into maintainable, tested tools used at DOE facilities.
- Mentored junior researchers; emphasized performance, reproducibility, and clear engineering practices.

### Research and Teaching Assistant

*Structural Engineering, Arizona State University*

Aug 2007 – Jul 2009

*Tempe, AZ*

- Researched FEM-based shape optimization for blast-resistant structural design (U.S. Army Research Office); supported structural engineering courses and labs.

### Project Engineer

*Wipro Technologies*

May 2006 – Jun 2007

*Bangalore/Hyderabad, India*

- Developed production-ready code in Java and SAP; quickly adapted to large-scale software environments.

## Awards

- **R&D 100 Award (2023):** CANDLE/Supervisor — [RDWorld](#)
- **R&D 100 Award (2022):** FLASH-X — [RDWorld](#)
- SBIR Phase I and II awards for RGG (2014–2017) with Kitware, Inc. — [Kitware RGG](#)
- University Graduate Fellowship, Arizona State University (2007–2009)

## Major Projects

### IMPROVE/CANDLE (Cancer Data Science - ECP)

Jan 2017 – Present

- Led CANDLE/Supervisor across DOE supercomputers; standardized experiments and HPO; **R&D 100 (2023)**.
- Improved reproducibility and fair model comparisons; widely cited.

### Uxarray (Climate Computation/Modeling - DOE)

Jun 2021 – Present

- Co-created a Python toolkit for unstructured climate grids; enabled up to 60x speed-ups via vectorization and parallelization; adopted by DOE climate users.

### FLASH-X (Multiphysics Simulation, Astrophysics - ECP)

Jun 2016 – Sep 2023

- Implemented asynchronous HDF5 I/O with compression; **R&D 100 (2022)**; improved I/O-bound runs by more than 20%.
- Architected a verification framework with nightly testing and baselines to stabilize releases.

### Urban Coupled Simulations (ECP Seed Funded)

Jun 2016 – Sep 2018

- Built coupling and data pipelines integrating high-fidelity weather with building energy models for city-scale analysis.

**SIGMA/MeshKit/RGG (Nuclear Reactor Simulations - DOE NEAMS)** Aug 2009 – Sep 2018

- Led MeshKit/DAG and RGG tools; advised Kitware during SBIR commercialization; reduced reactor core modeling time from weeks to hours.
- SBIR Phase I and II awards for RGG (2014–2017) with Kitware, Inc. — [\[Kitware RGG\]](#).

## Education

**The University of Chicago**  
*M.S. in Computer Science*

Chicago, IL  
Jun 2020

**Arizona State University**  
*M.S. in Structural Engineering (Minor: Computer Science)*

Tempe, AZ  
Jul 2009

**Indian Institute of Technology (IIT) Dhanbad**  
*B.Tech. in Mechanical Engineering*

Dhanbad, India  
May 2006

## Selected Publications, Talks & Media

- Wozniak, J. M., **Jain, R.**, et al. (2018). CANDLE/Supervisor. *BMC Bioinformatics*. [\[DOI\]](#)
- Mahadevan, V. S., Merzari, E., Tautges, T., **Jain, R.**, et al. (2014). High-resolution coupled physics solvers. *Phil. Trans. R. Soc. A*. [\[DOI\]](#)
- **Jain, R.**, Luo, X., Sever, G., Hong, T., & Catlett, C. (2020). Urban weather boundary conditions. *Journal of Building Performance Simulation*. [\[DOI\]](#)
- **Jain, R.**, & Tautges, T. J. (2012). Geometry and mesh models for reactor cores using a lattice hierarchy. *Engineering with Computers*. [\[DOI\]](#)
- Dhruv, A., **Jain, R.**, et al. (2023). Verification of Flash-X. *ICSE Companion*. [\[DOI\]](#)
- **Jain, R.**, et al. (2025). UXarray: Extending Xarray for Unstructured Grids. *EGU General Assembly*. [\[DOI\]](#) — [\[Video\]](#)
- HDF5 Annual Meeting: FLASH-X Async I/O — [\[Video\]](#)

## Teaching & Mentoring

- TA/RA at Arizona State University (2007–2009): blast mitigation research (U.S. Army Research Office) and structural engineering instruction.
- Mentored summer interns: Rylie Weaver (2023); Aaron Zedwick (2023–2025); Brett Rhodes (2014).

## Technical Skills

**HPC and Programming:** Python, Fortran, C++; MPI, OpenMP, HDF5, parallel I/O, performance tuning on supercomputers.

**ML and Data Tools:** PyTorch, Keras, NumPy, Matplotlib, pandas, Scikit-learn, Jupyter; software engineering with Git, CI/CD.