



Summary

Saumik is a U.S. permanent resident and an accomplished computational engineer with a Ph.D. in Engineering Mechanics from UT Austin. In graduate school, he enabled groundbreaking large-grid geoscientific simulations on a supercomputer using Fortran/C/MPI. At a national lab, he developed Python code to accelerate subsurface flow simulations by 3 orders of magnitude. He led the development of a fusion startup's first Python-based stock price predictor, expanding their SaaS offerings to include financial analytics. He is proficient in Bayesian inference, time series analysis, and machine learning.

Portfolio

- **Programming Languages:** Python, C, C++, Fortran, Matlab
- **Data Science Tools:** PyTorch, scipy, scikit-learn, pandas, statsmodels, seaborn, hyperopt, Jupyter Notebook, vim, gnuplot, boost, eigen, matplotlib, numpy, opencv
- **Software Development:** Git, Conda, AWS, MPI, Azure, Poetry, FastAPI, Flask, Heroku, asyncio, Qml, PySide6
- **GitHub:** <https://github.com/SaumikDana>
- **Website:** <https://saumikdana.github.io/>

Work Experience

Computational Engineer, VISIE Inc., Austin, TX

Aug 2023-Nov 2023

- **Engineered** a robotic control system for precise movement and scanning, enabling real-time image registration **for an orthopedics product demo, garnering significant interest from major industry players.**
- Streamlined package sub-component releases to Azure Artifacts, enhancing the deployment process.

Computational Lead, Sapientai LLC, Austin, TX

Aug 2022-Mar 2023

- **Developed the startup's first stock price predictor**, leveraging data-driven discovery processes from their fusion-focused services, **expanding the company's SaaS offerings to include financial analytics.**
- Implemented autoregression and comprehensive cross-validation, enhancing model reliability and predictive accuracy, and facilitated continuous delivery integration using GitHub Actions.

Postdoctoral Associate, University of Southern California, Los Angeles, CA

Nov 2020-July 2022

- **Developed and implemented large-scale geoscientific simulations on AWS EC2 instances, advancing the lab's computational capabilities.** Introduced a novel Bayesian MCMC approach for parameter estimation, setting new benchmarks in data analysis.

Postdoctoral Associate, Baylor College of Medicine, Houston, TX

Feb 2020-Oct 2020

- Engineered innovative tools for biologists in forensics, enhancing their analytical workflows significantly.

Postdoctoral Associate, Rensselaer Polytechnic Institute, Troy, NY

Aug 2019-Jan 2020

- Collaborated with a NYC startup to optimize a vertical axis wind turbine design, achieving a 20% reduction in power loss and enhancing energy efficiency.

Postdoctoral Associate, Los Alamos National Lab, Los Alamos, NM

Jan 2019-July 2019

- Implemented a reduced order model for subsurface flow, **accelerating simulations by 500-1000 times and enabling real-time decision-making for operators.**

Graduate Intern, Siemens Corporate Technology, Princeton, NJ

June 2018-Sept 2018

- Developed a tool for simulating temperature evolution in laser-based additive manufacturing, improving process precision and microslice accuracy.

Education

Doctor of Philosophy in Engineering Mechanics, University of Texas at Austin

Aug 2012-Dec 2018

- **Developed a finite element technique enabling groundbreaking large-grid geoscientific simulations on a supercomputer.** The research culminated in several publications and was instrumental in advancing iterative solution techniques for coupled flow and geomechanics.

Master of Engineering in Mechanical Engineering, Indian Institute of Science

Aug 2009-June 2011

Bachelor of Engineering in Mechanical Engineering, University of Mumbai, India

Aug 2004-May 2008