

Jaiman Parekh

Email: jaiman.parekh1@gmail.com | Website: jaiman-parekh.org

EDUCATION

New Jersey Institute of Technology <i>Albert Dorman Honors College, Double Major in Applied Physics and Computer Science</i>	Sep. 2022 - May 2026 (Exp.)
	3.78/4.00

EXPERIENCE

Computational Science Intern <i>Black-box Optimization for Expensive Problems</i>	June 2025 – August 2025 Naval Nuclear Labs, Pittsburgh
<ul style="list-style-type: none">Implemented a Bayesian Optimization algorithm for maximization of high-dimensional, non-convex functionsDeveloped scalable HPC workflows to perform over 100 benchmarking tests for common user applicationsInvestigated various learning and sampling methods on performance across suite of scalable synthetic problemsExplored theoretical and algorithmic improvements on special cases of computationally intense tasksExposure to modern SWE/HPC practices and libraries as well as contributions to production codeGranted L-level DOE security clearance	
Undergraduate Research Assistant <i>Magnetohydrodynamics (MHD) of Coronal Mass Ejections (CME)</i>	Jan 2023 – Present Center for Solar-Terrestrial Research, NJIT
<ul style="list-style-type: none">Integrated a GPU-based renderer to HPC workflow for automated visualization of terabyte sized datasetsReduced runtime of MHD solver by over 50% by optimizing parallelization scheme for ~150 CPU coresRefactored and version-controlled legacy modules to replace hardcoded constants with user argumentsBuilt robust automation and error handling scripts now used by lab members to streamline job submissionConfirmed consistency of novel method to trigger CMEs with observation through key MHD metrics	
Undergraduate Research Assistant <i>Nonlinear Fluid Dynamics</i>	May 2023 – July 2023 NJIT
<ul style="list-style-type: none">Investigated perturbative effects of viscosity and surface tension on resonant wavesApplied numerical methods to study nonlinear wave instabilities, reducing error propagation in surface simulationsBuilt custom experimental apparatus to validate models, linking theoretical predictions with observed data	
Tutor <i>NJIT Math and Physics Departments</i>	Sept. 2023 - Present Newark, NJ
<ul style="list-style-type: none">Calculus(1/2/3), Differential Equations, Linear Algebra, Statistics, Classical Mechanics, ElectrodynamicsWork with students of all ability levels by guiding them through problem-solving approaches	

PROJECTS

Algorithmic Trading	Jan. 2025 - Present
<ul style="list-style-type: none">Built automated trading system for live financial data and executed trades through Alpaca and Polygon APIsApplied signal-processing and statistical techniques to denoise time-series dataBuilt a modular pipeline for data ingestion and order handlingExperimented with backtesting strategies on historical data	

TECHNICAL SKILLS

Languages: Python, Javascript, C/C++, Bash, SQL, Fortran, MatLab
Dev Tools/Libraries: Git, React, Express, Slurm, PyTorch, Parsl, Conda, GDB, NumPy, MatPlotLib, OpenMPI

AWARDS AND PRESENTATIONS

Albert Dorman Scholar: Full tuition merit scholarship for 2022-2026
Barry Goldwater Scholarship: Finalist 2025; Semi-finalist 2024
Presentations: Presented at NJIT Undergraduate Research and Innovation symposiums; 2023, 2024