

Tadanaga Takahashi (He/Him)

APPLIED MATHEMATICIAN

Newark, New Jersey

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About me

Recent Ph.D. graduate passionate about mathematics and coding, specializing in high-performance algorithm development for scientific computing. With 9 years of applied math education and practice, I offer advanced analytical and programming skills. Seeking a research scientist position in government or industry to develop meaningful algorithms.

Education

New Jersey Institute of Technology and Rutgers the State University of New Jersey

Newark, NJ

PH.D. IN MATHEMATICAL SCIENCES

Sept. 2017 - May 2023

GPA: 3.83/4.00

Dissertation: Elliptic PDEs, Scientific computing, High performance computing

Applied math: Real & complex analysis, Modeling, Linear algebra, PDE, Numerical analysis

Advanced topics: Asymptotics, Optimal transport, Boundary integral equations

New Jersey Institute of Technology

Newark, NJ

B.S. IN MATHEMATICAL SCIENCES

Sept. 2014 - May 2017

GPA: 4.00/4.00

Thesis: Granular physics, Computational topology, Data analysis

Statistics: Regression, Statistical learning, Time series, Stochastic processes & simulation

Applied math: Real & complex analysis, Modeling, Linear algebra, PDE, Dynamical systems

Computational: Numerical analysis, Computational linear algebra, High performance computing

Professional Experience

2023 **Adjunct Professor**, Dept. of Mathematical Sciences, NJIT

2019-2023 **Graduate Research Assistant**, Dept. of Mathematical Sciences, NJIT

2017-2019 **Graduate Teaching Assistant**, Dept. of Mathematical Sciences, NJIT

2016-2017 **Undergraduate Research Assistant**, Dept. of Mathematical Sciences, NJIT

Research Projects

Nonlinear Additive Schwarz for the Monge-Ampère Equation

NJIT

DEVELOP PARALLEL ALGORITHMS FOR A FULLY-NONLINEAR PROBLEM

2020-2023

Key words: Wide stencil, Domain decomposition, PETSc, Optimal transport

Non-overlapping Domain Decomposition Methods for the Helmholtz Equation

NJIT

DEVELOP PARALLEL ALGORITHMS FOR WAVE SCATTERING SIMULATIONS

2019-2023

Key words: Finite element, Boundary element, Domain decomposition, Wave scattering

Topology of Force Networks in Granular Systems

NJIT

ANALYZE THE FORCE PROPAGATION DURING IMPACT USING COMPUTATIONAL TOPOLOGY TOOLS

2016-2018

Key words: Granular media, Persistent homology, Missile impact

Applications of the Kalman Filter for Modeling Eddy Currents

NJIT

STUDY OPTIMAL DATA COLLECTION TECHNIQUE FOR ESTIMATING FLOW PARAMETERS

2015-2016

Key words: Stochastic simulation, Kalman filter, Data assimilation

Skills

- **Programming:** MATLAB, Python, C, Fortran, shell
- **Libraries:** LAPACK, OpenMP, MPI, PETSc
- **Web:** HTML, CSS, Django, Render
- **Tools:** VS Code, GitHub, Makefile, Overleaf
- **Communication:** LaTeX, Beamer, Slack
- **Languages:** English, Japanese
- **Others:** AI Prompting,