Max Paik
427 Correas St. | Half Moon Bay, CA 94019
maxpaik@nyu.edu | (650) 799-3506 | www.linkedin.com/in/max-paik

Education

New York University
New York City, New York, September 2023 – May 2028
Doctor of Philosophy, Computer Science

Northwestern University
Evanston, Illinois, September 2019 – June 2023
Bachelor of Arts, Summa Cum Laude, Double Major in Computer Science and Physics
Cumulative GPA: 4.0/4.0

Honors and Awards

- DoE Computational Science Graduate Fellowship, Awarded 2024 – 2028
- MacCracken Fellowship, Awarded, 2023 – 2028
- Phi Beta Kappa, Inducted to National Honor Society, 2023
- Gates Cambridge Scholarship Nominee, 2023
- Sigma Pi Sigma, Inducted to National Physics and Astronomy Honor Society, 2022
- Northwestern University Dean's List, 2019 – 2023
- California State Seal of Biliteracy (Spanish), 2019

Research Experience

Research Assistant, **Geometric Computing Lab**
New York University, Sep. 2023 – Present
- Develop novel methods for physical simulation in a variety of domains, from cellular wound closure to solid mechanics.

Intern, **DOE CSGF Practicum**
Argonne National Laboratory, May 2025 – Aug. 2025
- Investigated different solvers for large-scale contact simulation, including GPU-accelerated direct linear solvers and improved Projected Newton methods.

Defense, Science, and Technology Intern, **Nuclear Data and Theory Group**
Lawrence Livermore National Laboratory, May 2024 – Aug. 2024
- Integrated nuclear scattering and Markov-chain Monte Carlo codes and performed a series of fits quantifying the uncertainty of semi-microscopic optical potentials on HPC machines.

Researcher, **Center for Interdisciplinary Exploration and Research in Astrophysics**
Northwestern University, Mar. 2021 – Nov. 2023
- Ran and analyzed cutting-edge, GPU-accelerated general relativistic magnetohydrodynamic simulations of relativistic jets and supermassive black holes using Oak Ridge National Laboratory's High Performance Computer Clusters.

***Research Assistant,* Driscoll Lab**
Northwestern University, Jan. 2020 – Jun. 2021
- Developed an independent research project using a microscope and computational methods to image fracturing colloidal droplets.

Publications

Huang Z, **Paik M**, Ferguson Z, Panozzo D, Zorin D. ***"Geometric Contact Potential,"*** ACM Trans. Graph. 44, 4, Article 158. 2025.

Rohoza V, Lalakos A, **Paik M**, Chatterjee K, Liska M, Tchekhovskoy S, Gottlieb O. ***"How to turn Jets into Cylinders near Supermassive Black Holes in 3D GRMHD Simulations,"*** The Astrophysical Journal Letters, Volume 963, Number 1. 2024.

Presentations

Huang Z, **Paik M**, Ferguson Z, Panozzo D, Zorin D. ***"Robust Contact Simulation with IPC,"*** 18th U.S. National Congress on Computational Mechanics 2025, Chicago, Illinois.

Paik M, Kolev T, Panozzo D, Zorin D. ***"A Filtering Preconditioner for Scalable Incremental Potential Contact,"*** DOE CSGF Annual Program Review 2025, Washington D.C.

Paik M, Rohoza V, Lalakos A, Chatterjee K, Tchekhovskoy S, Liska M. ***"Shaping Jets with the Ambient Medium,"*** Growing Black Holes: Accretion and Mergers 2022, Kathmandu, Nepal.

Rohoza V, **Paik M**, Lalakos A, Chatterjee K, Tchekhovskoy S, Liska M. ***"How to Turn Jets into Cylinders,"*** Growing Black Holes: Accretion and Mergers 2022, Kathmandu, Nepal.

Seper BC, Arora S, **Paik M**, Driscoll M. ***"Dimples and Voids in Dense Drying Drops,"*** American Physical Society March Meeting 2022, Chicago, Illinois.

Seper BC, Arora S, **Paik M**, Driscoll M. ***"Drying Colloidal Suspensions: Simple Patterns and Complex Flows,"*** American Physical Society Division of Fluid Dynamics (Fall) 2021.

Paik M, Driscoll M. ***"Computer Vision Algorithms for Analyzing Drying Colloidal Suspensions,"*** Northwestern Undergraduate Research Exposition 2021 (Poster).

Grants Awarded

"Relativistic Jet Formation Around Black Holes," Illinois Space Grant, awarded by the Illinois Space Grant Consortium, 2021.

"Relativistic Jets," Baker Award, awarded by the Weinberg College of Arts and Sciences, 2021.

"Drying Colloidal Droplets," Summer Undergraduate Research Grant, awarded by the Northwestern Office of Undergraduate Research, 2020.

"Drying Colloidal Droplets," Academic Year Undergraduate Research Grant, awarded by the Northwestern Office of Undergraduate Research, 2020.

Relevant Work Experience

Software Developer Intern, Caterpillar Inc.
Chicago, Illinois, Jun. 2022 – Oct. 2022
- Developed solutions to allow live and asynchronous network communication between central servers and Internet of Things (IoT) devices.

Machine Learning Intern, Sirona Medical
San Francisco, California, June 2019 – Sept. 2019
- Developed and customized medical image visualization tool with features such as displaying formatted metadata, volume rendering, and loading in images chosen through a custom hdf5 browser.

Youth Learning and Outreach Intern, Half Moon Bay Library
Half Moon Bay, California, May 2018 – June 2019
- Arranged events in Makerspace creating and printing 3D models, including a 3D selfie photo session.

Reporter, Half Moon Bay Review
Half Moon Bay, California, Feb. 2017 – Jan. 2019
- Collaborated with town paper's editorial staff; discovered, developed, researched, and pitched stories before writing weekly articles covering local sports, events, and programs, consistently meeting deadlines.

Community Involvement

Peer Mentor, Data Structures, Systems, and Programming Languages, Department of Computer Science
Northwestern University, Winter 2021, Spring 2021, Fall 2021, Winter 2022, Spring 2022
- Led office hours, distribute assignments, and grade exams.

Secretary and Maker's Division Lead, Robotics Club
Northwestern University, Sept. 2019 – Present
- As a part of the Lacrosse Goalie Project, develop original code to track a ball's position and velocity while predicting its flight path in real time using only a single camera.

Team Co-lead and Finalist, McCormick Engineering School Design-A-Thon
Northwestern University, Sept. 2020
- Co-led a team of six in design competition focused on creating community during COVID-19.

Campus/City Reporter, The Daily Northwestern
Northwestern University, Sept. 2019 – Jan. 2020
- Reported on local events such as artist markets for Northwestern's premier paper.

Prose Staff, Helicon
Northwestern University, Sept. 2019 – Jan. 2020
- Reviewed and edited submissions for Northwestern's literary magazine.

Skills

Technical: C, C++, Java, JavaScript, Python, Racket, SQL. AWS, Azure DevOps, Git. HAMR, NumPy, Matplotlib, PyTorch, OpenCV, scikit-image. Agile Development, Cloud Computing, Command Line, Compiler

Construction, High Performance Computing, Image Processing, Machine Learning, Networking, Numerical Methods, Parallel Programming, Physics-Based Simulation, Researching, Statistics, Unix.

Communication: Active Communicator, Article Writing, Interviewing, Journalist, Nationally Published Author, Public Speaking, Fluent in Spanish.

Leadership: Attention to Detail, Creativity, Initiative, Patience, Positivity, Reliability, Self-Starter, Teachability.