

Paul G. Beckman

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Education

- New York University** 2020-
PhD in Mathematics
Advisor: Mike O'Neil
- The University of Chicago** 2015-2019
BS with Honors in Computational and Applied Mathematics
Thesis: Nonstationary Gaussian process approximations of piecewise analytic computer codes
Advisor: Mihai Anitescu

Research

- Lawrence Berkeley National Laboratory** *CSGF Practicum* 2023
Advisors: Xiaoye Sherry Li, Yang Liu
Towards an optimal complexity black-box butterfly factorization from matrix-vector products
- Argonne National Laboratory** *Predoctoral Researcher* 2019-2020
Advisor: Mihai Anitescu
Maximum likelihood estimation for nonstationary Gaussian processes with rank-structured covariance matrices
- Lawrence Berkeley National Laboratory** *BLUR Intern* 2018
Advisor: Chao Yang
Clustering-based shift selection in parallel shift-invert spectrum slicing eigensolver for self-consistent field iterations
- Lawrence Livermore National Laboratory** *SULI Intern* 2017
Advisors: Jean-Luc Fattebert, Daniel Osei-Kuffuor
Geometric initial guess for the locations of localized electronic orbital centers in DNA, RNA, and protein systems
- University of Chicago Computation Institute** *Undergraduate Researcher* 2016-2017
Advisors: Ian Foster, Kyle Chard
Statistical data mining software for heterogeneous databases; streaming and storage systems for sensor network data

Publications & Reports

- Beckman, Paul G., Christopher J. Geoga, Michael L. Stein, and Mihai Anitescu. ["Scalable Computations for Nonstationary Gaussian Processes."](#) *Statistics and Computing* 33, no. 4 (2023): 84.
- Williams-Young, David B., Paul G. Beckman, and Chao Yang. ["A Shift Selection Strategy for Parallel Shift-Invert Spectrum Slicing in Symmetric Self-Consistent Eigenvalue Computation."](#) *ACM Transactions on Mathematical Software (TOMS)* 46, no. 4 (2020): 1-31.
- Skluzacek, Tyler J., Rohan Kumar, Ryan Chard, Galen Harrison, Paul G. Beckman, Kyle Chard, and Ian Foster. ["Skluma: An Extensible Metadata Extraction Pipeline for Disorganized Data."](#) In *2018 IEEE 14th International Conference on e-Science (e-Science)*, pp. 256-266. IEEE, 2018.
- Beckman, Paul G., Jean-Luc Fattebert, Edmond Y. Lau, and Daniel Osei-Kuffuor. [A geometric initial guess for localized electronic orbitals in modular biological systems.](#) No. LLNL-TR-738503. Lawrence Livermore National Lab. 2017.

Awards

Department of Energy *Computational Science Graduate Fellowship* 2020

Presentations

SIAM *Uncertainty Quantification* 2024

Talk: "Fast adaptive Fourier integration of spectral densities"

Poster: "Butterfly-accelerated Gaussian random fields on manifolds"

ICIAM *International Congress on Industrial and Applied Mathematics* 2023

Talk: "Boundary integral methods for computing covariances in inverse source problems"

New York University *Modeling and Simulation Group Meeting* 2022

Talk: "Rank, screening, and noise: The Vecchia approximation for kernel matrices"

SIAM *Mathematics of Data Science (Minisymposium co-organizer)* 2022

Talk: "Fast algorithms for elliptic PDEs with Gaussian boundary noise"

Teaching

Mathematic Statistics *Teaching Assistant* Spring 2024

New York University MATH-UA.2340

Statistics *Teaching Assistant* Fall 2021

New York University MATH-GA.2962

Computational Statistics *Teaching Assistant* Spring 2021

New York University MATH-GA.2080

Outreach and Service

Petey Greene Program *Volunteer Tutor* 2020-

Math and science tutor for currently and formerly incarcerated individuals

- Elementary through middle school math and classroom preparedness for adults
- High school equivalency (GED and TASC)
- College algebra