

Georgios (Giorgos) Kementzidis

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EDUCATION

Stony Brook University

PhD in Applied Mathematics and Statistics | GPA: 4.00

Stony Brook, NY

May 2027

- Relevant coursework: Numerical Analysis, PDEs, Parallel Computing, Scientific Programing in C++

Grinnell College

B.A. in Mathematics and Physics with honors | GPA: 3.97

Grinnell, IA

May 2022

PROFESSIONAL WORK EXPERIENCE

Stony Brook University

February 2023 – Present

Graduate Research Assistant

- Develop methods based on ML to facilitate computational methods in biomedical sciences and beyond.
- Actively use the tools of the PyTorch and TensorFlow libraries to create models.
- Use the school's high performance computing cluster (SeaWulf) to run programs faster, on multiple CPUs and GPUs.
- Lead a group of high-school and undergraduate students working on one of our research projects.
- Actively participate in a weekly journal club, where we read and present papers on ML and reinforcement learning models.
- Published "Learning coarse-grained force fields for fibrogenesis modeling" in *Computer Physics Communications* in 2024 with Z. Zhang, et. al.

Stony Brook University

August 2022 – Present

Graduate Teaching Assistant

- Mentor 140-150 students in undergraduate classes: "Applied Linear Algebra", "Differential Equations".
- Teach recitations; maintain office hours; hold review sessions; develop and grade exams.

PROJECTS

Stony Brook University, Department of Mathematics and Statistics

August 2022 – Present

Graduate Research Assistant; multiple projects

- Use PIPL to develop coarse-grained force fields that speed up MD simulations by almost 10^5 times.
- Develop CNNs to recognize images of handwritten symbols.
- Use MPI with C to parallelize and speed-up expensive computations (e.g., matrix multiplication).
- Use c-VAEs to approximate RMSD distributions to explore the effects of temperature and pH.
- Use c-GANs to de-coarsen coarse-grained structures.
- Conduct image segmentation to analyze μ -CT scans.
- Generate drug-like molecules/ligands using WGAN-GP and AEs.

Grinnell College, Department of Mathematics and Statistics

March 2022 – May 2022

Student Researcher; course embedded research; MAT 306 Mathematical Modeling

- Collaborated with another student to extract, clean, and analyze data using Python and R.
- Applied mathematical and statistical techniques to model a disease outbreak draw conclusions from real data.
- Wrote a report "Exploring the Correlation between Government Stringency and Disease Transmission based on SIR".

Grinnell College, Department of Mathematics and Statistics

October 2021 – December 2021

Student Researcher; course embedded research; MAT 317 Complex Analysis

- Explored fields of complex analysis, dynamical systems, and fractal geometry, proved lemmas and theorems.
- Used numerical methods in Python to visualize fractals coming from dynamical systems.
- Completed a report "Montel's Theorem and its Application to the Common Boundary Condition".

University of Connecticut, Department of Mathematics

May 2021 – August 2021

Student Researcher, Research Experience for Undergraduates (REU)

- Studied measure theory, optimal transport, explored solutions to an original problem, used programing in Python.
- Presented "An Introduction to Optimal Transport on the Sierpinski Gasket" at the "REU Vir(tu)al Conference 2021".

OTHER SKILLS

- **Programming languages:** Python (PyTorch, Tensorflow, pandas, scikit-learn), C++, C, MATLAB, R
- **Other software skills:** Microsoft Excel, LaTeX, Wolfram Mathematica, Git, MPI, GPU programming, HPC
- **Languages:** Fluent: Greek and English; Advanced: German