

Georgios (Giorgos) Kementzidis

(641) 260 - 4187 | +30 6975518430

giorgoskement@gmail.com | www.linkedin.com/in/georgios-kementzidis/ | gkementzidis.github.io/gkementzidis

EDUCATION

Stony Brook University

PhD in Applied Mathematics and Statistics | GPA: 4.00

Stony Brook, NY

May 2027

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 used in MD simulations 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 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

January 2023 – Present

Graduate Research Assistant; multiple projects

- Use PIPL to develop coarse-grained force fields that speed up protein MD simulations by almost 10^5 times.
- Explore the effects of temperature and pH on the behavior of proteins through MD simulations conducted in GROMACS.
- Investigate the use of c-GANs to de-coarsen coarse-grained structures (e.g., small proteins).
- Use image processing & computer vision, as well as DL techniques to conduct image segmentation and analyze μ -CT scans.
- Explore the use of generative AI (GANs, AEs, RL, GA) for *de novo* drug design (ligand-based and pocket-based) and assess the generated molecules (binding energy calculation, docking, etc.).
- Use MPI with C to parallelize and speed-up expensive computations (e.g., matrix multiplication).

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 Physics

September 2021 – November 2021

Student Researcher; course embedded research; PHY 462 Advanced Laboratory

- Conduct an experiment to determine the lifetime of muons.
- Work independently and responsibly with equipment (oscilloscope, PMT, CFD, TAC, MCA) to collect data.
- Apply the theory to analyze the results (pandas) and correctly identify the sources of error.

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 programming in Python.
- Presented "An Introduction to Optimal Transport on the Sierpinski Gasket" at the "REU Virtual Conference 2021".

OTHER SKILLS

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

Available start data: May 20th