Sophia M. Kliatchko

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Education

Carnegie Mellon University, Pittsburgh, PA   May 2028
Bachelor of Science in Applied and Computational Mathematics
Cumulative GPA: 4.0/4.0 ; Dean's List, High Honors

Skills

Programs: LaTeX, MATLAB, Jupyter Notebook, Open Visualization Tool (OVITO), Large-scale Atomic/Molecular Massively Parallel Simulator (LAMMPS)

Software and Programming Languages: Python (standard packages for materials science, math, data analysis, and animation), Java, Javascript, UNIX-type OS usage, massively parallel computing, proof writing

Relevant Coursework: Fundamentals of Programming and Computer Science, Reasoning with Data, Calculus I-III, Discrete Math, Differential Equations, Linear Algebra, Physics I-III

Project Experience

ADHDCal: An Online Calendar App   Nov 2025 - Dec 2025
CMU, Fundamentals of Programming and Computer Science

- Designed and implemented a fully custom calendar/notes application in Python, using object-oriented programming and hash-based data structures to build an efficient event-storage and retrieval system with fast lookup and conflict-checking logic
- Engineered interactive algorithms that allow dynamic navigation, editing, and customization of scheduled data.

Summer Undergraduate Research Apprenticeship   May 2025 - Aug 2025
CMU, M5 Group, P.I. Dr. Jerry Wang

- Coded and executed molecular dynamics simulations using LAMMPS and processed large quantities of data in MATLAB and OVITO
- Analyzed the application of excess-entropy scaling to atomic Lennard-Jones fluids ; presented an in-depth research report summarizing methods and interpreting findings

Artemis Mission Simulation   Nov 2024
CMU, Matter and Interactions I

- Programmed an animated simulation of a multi-stage rocket launch and landing from Mars to Phobos in Python, modelled on the Artemis rocket
- Collaborated with two peers to design the simulation, calculate fuel loads, solve differential equations to predict forces and kinematics, and presented a poster with final results to the Physics Department Faculty

Work Experience

Teaching Assistant: Differential and Integral Calculus   July 2025 - Present
Carnegie Mellon University, Pittsburgh, PA

- Teach weekly recitations and hold office hours ; communicate challenging math concepts
- Collaborate with professors and other TAs to create a proactive and supportive learning environment

Intern   May 2024 - June 2025
Tietjen & Venegas: Consulting Engineers, Rye, NY

- Calculated thermal loads, designed HVAC systems and selected necessary equipment
- Interacted with clients, attended contractor consultations and shadowed mechanical and electrical engineers at work

Leadership

Soprano Section Leader   Dec 2024 - Present
Carnegie Mellon University, D Flat Singers

- Guide singers through learning and performing, and facilitate communication between singers and leadership