

Exponent®
Engineering & Scientific Consulting

Gabby Jones, Ph.D.

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Professional Profile

Gabrielle (Gabby) Jones, Ph.D., is a Data Scientist with experience in particle self-assembly, soft matter physics, and large-scale scientific computing. She specializes in granular packing problems, computational geometry, and parallel algorithm development.

Dr. Jones' consulting approach integrates her extensive experience developing computational tools and applying simulation-drive approaches to solve problems in materials science, engineering, and statistical mechanics. She accomplishes this by optimizing and parallelizing code for at-scale computing, designing and documenting user-friendly APIs, and building interactive data visualization dashboards. She brings large scale computing expertise to deliver thorough and defensible conclusions.

Before joining the CDSS practice at Exponent, Dr. Jones earned her Ph.D. in Chemical Engineering from the University of Michigan. There, she worked as a research fellow investigating the effect of geometric constraints and particle shape on self-assembly and structural organization in particulate colloidal systems. Using a combination of Monte Carlo methods and geometric constructions, she examined crystalline structures on curved surfaces and the packing behavior within confined (binned) environments, providing new insights into the design of programmable and tunable materials. Her novel findings are applicable for use in emulsion formulations and chiroptical materials.

Beyond her technical work, Dr. Jones is an active member of the scientific community. She regularly attends and presents work at a variety of physics, engineering, and mathematics conferences. In tandem, she has served as a graduate instructor, mentored undergraduate and graduate researchers, and held leadership roles supporting graduate students and university initiatives.

Academic Credentials & Professional Honors

Ph.D., Chemical Engineering, University of Michigan, 2026

M.S., Chemical Engineering, University of Michigan, 2024

B.S., Chemical Engineering, Columbia University, 2020

Augustus Prince Scholar Award, Brookhaven National Laboratory, 2023

Computational Graduate Science Fellowship, Department of Energy, 2021-2025

GEM Master's Fellowship, National GEM Consortium, 2020-2021

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Prior Experience

Research Fellow, National Laboratory of the Rockies, Golden, CO, 2022

GEM Research Fellow, Brookhaven National Laboratory, Upton, NY, 2020

Publications

Jones GN, Schönhöfer PWA, Glotzer SC. Using particle shape to control defects in colloidal crystals on spherical interfaces. Soft Matter 2026; 22:2558–2567.

Russell ST, Pereira R, Vardner JT, Jones GN, Dimarco C, West AC, Kumar SK. Hydration effects on the permselectivity-conductivity trade-off in polymer electrolytes. Macromolecules 2020; 53(3):1014–1023.

Presentations

Jones GN, Mughal A, Schönhöfer PWA, Glotzer SC. Dense packing behavior of tetrahedra in cylindrical confinement. Oral Presentation, American Physical Society 2026 March Meeting, Denver, CO., 2026.

Jones GN, Mughal A, Schönhöfer PWA, Glotzer SC. Dense packing behavior of tetrahedra in cylindrical confinement. Poster Presentation, Gordon Research Conference on Colloidal, Macromolecular, and Polyelectrolyte Solutions, Ventura, CA, 2026.

Jones GN, Mughal A, Schönhöfer PWA, Glotzer SC. Dense packings of convex particles in cylindrical confinement. Oral Presentation, Department of Energy Computational Science Graduate Fellowship Annual Program Review, Washington, D.C., 2025.

Jones GN. Play, with purpose. Magazine Profile, Department of Energy CSGF Annual DEIXIS Magazine, 2025.

Jones GN, Schönhöfer PWA, Glotzer SC. Controlling topological defects in curved spherical crystals of hard superballs. Oral Presentation, American Institute of Chemical Engineers Annual Meeting, San Diego, CA, 2024.

Jones GN, Schönhöfer PWA, Glotzer SC. Controlling topological defects in curved spherical crystals of hard superballs. Oral Presentation, Conference of the European Colloid and Interface Society, Copenhagen, Denmark, 2024.

Jones GN, Schönhöfer PWA, Glotzer SC. Controlling topological defects in curved spherical crystals of hard superballs. Poster Presentation, Foundations of Molecular Modeling and Simulation, Snowbird, UT, 2024.

Jones GN, Schönhöfer PWA, Glotzer SC. Controlling topological defects in curved spherical crystals of hard superballs. Oral Presentation, American Physical Society 2026 March Meeting, Minneapolis, MN, 2024.

Peer Reviews

Reviewer for ACS Nano