Ben Wilfong

1 Basic Information

Title: Graduate Research Assistant
Institution: Georgia Institute of Technology
Email: bwilfong3@gatech.edu
Website: benwilfong.com
Research Interests: Computational fluid dynamics, bubble dynamics, hydrodynamic instability, multiphase fluid dynamics, high performance computing, GPU accelerated modeling and simulation

2 Education

- Georgia Institute of Technology
  (In Progress) Doctor of Philosophy, Computational Science and Engineering
  Advisor: Dr. Spencer Bryngelson
  Relevant coursework: High Performance Computing (S24), Turbulent Fluid Flows (S24), Iterative Methods for Systems of Equations (F23), Numerical Linear Algebra (S23), Viscous Fluid Flows (F22)

- Rose–Hulman Institute of Technology
  (2022) Bachelor of Science, Mechanical Engineering and Computational Science

3 Experience

- Weapons and Complex Integration Intern — June 2022 – August 2022

  Institution: Lawrence Livermore National Laboratory
  Supervisor: Dr. Kyle Sinding
  Duties: Perform finite element simulation using LLNL's HPC resources using ALE3D, generate case files and input data, post-process data to gather useful quantities of interest

- EERE High Performance Computing for Manufacturing Intern — June 2021 – August 2021

  Institution: Lawrence Livermore National Laboratory in collaboration with Oak Ridge Institute for Science and Education (ORISE)
  Supervisor: Dr. John Karnes
  Duties: Perform molecular dynamics simulations using LLNL's HPC resources using LAMMPS, generate case files and input data, post-process data to gather useful quantities of interest

4 Awards

- (2024) CRNCH Fellowship for Novel Computing Paradigms and Hierarchies
- (2022) Georgia Tech Presidents Fellowship
- (2018-22) Deans List, Rose–Hulman Institute of Technology

5 Service and Outreach

- (2023-Present) PURA Award Reviewer

6 Publications

6.1 Archival, heavily referred papers

[P1] A. Radhakrishnan, H. Le Berre, B. Wilfong, J.-S. Spratt, M. Rodriguez Jr., T. Colonius, and S. H. Bryngelson. "Method for portable, scalable, and performant GPU-accelerated simulation of multiphase compressible flow". In: *Computer Physics Communications* 302 (2024), p. 109238. DOI: 10.1016/j.cpc.2024.109238

6.2 Conference papers

[C2] B. A. Wilfong, R. McMullen, T. Koehler, and S. H. Bryngelson. "Instability of Two-Species Interfaces via Vibration". In: *AIAA AVIATION FORUM AND ASCEND 2024*. DOI: 10.2514/6.2024-4480

[C1] B. Wilfong, A. Radhakrishnan, H. A. Le Berre, S. Abbott, R. D. Budiardja, and S. H. Bryngelson. "OpenACC offloading of the MFC compressible multiphase flow solver on AMD and NVIDIA GPUs". arxiv: 2409.10729. 2024

6.3 Abstracts

[A1] B. Wilfong and S. H. Radhakrishnan A.and Bryngelson. *Multiphase flow numerics: Perspectives from exascale simulation.* Reykjavik, Iceland, 2024