WORK EXPERIENCE

SpaceX 🔗 — **Space Exploration Technologies Corp.**
Raptor Combustion Devices > Raptor Combustion Simulation [HPC Combustion CFD]   Hawthorne, CA, USA

   Propulsion Software Engineer   Jan. 2025 — Present

   Software Engineering Intern   Aug. 2023 — Dec. 2023
- **25% speed up** of the **Raptor Combustion CFD Code** on production simulations. CUDA C++ GPU kernel optimizations.

Verkada 🔗 — **Verkada Inc.**
Device Platform Team | Alarms and Intrusion   San Mateo, CA, USA

   Software Engineer Intern   May — Aug. 2023
- **Verkadathon** (Verkada Hackathon) **Winner** for "Best Use of Verkada Products" with Viraj Ramakrishnan and Jay Chou.

HONORS & AWARDS

- **Gordon Bell Prize Finalist** from the Association for Computing Machinery (ACM). | Press: **ORNL** 🔗 & **HPC Wire** 🔗   Jan. 2025
- **President's Undergraduate Research Award (PURA) Travel** recipient from the Georgia Institute of Technology.   2022
- **HOPE Scholarship** recipient from the U.S. state of Georgia.

FEATURED PUBLICATIONS   **Google Scholar** 🔗

- Simulating **many-engine spacecraft**: **Exceeding 1 quadrillion *DOFs*** via information geometric regularization.   **2505.07392** 🔗
- **MFC 5.0**: An **exascale** many-physics **flow solver**.   **2503.07953** 🔗
- Open-Source Combusting Flow Simulation.   **1853/78203** 🔗
- Method for **scalable and performant GPU-accelerated** simulation of **multiphase compressible flow**.   **2305.09163** 🔗
- **Pyrometheus**: […] XPU and automatically differentiated computation of combustion kinetics and thermodynamics. **2503.24286** 🔗

EDUCATION

- **Georgia Institute of Technology** — **Bachelor's** in Science in **Computer Science**   Summer 2021 — Fall 2024
  GPA: 3.82 ("Highest Honor"). **Research Option**. Modeling & Simulation / Systems & Architecture   Atlanta, GA, USA
  Links: **Diploma** 🔗 | **Undergraduate Thesis** 🔗
- **Lycée Lavoisier** — **Baccalauréat Général** with **High Honors** (« Mention Très Bien »)   2021
  Concentrations: Mathematics, Computer Science, Physics & Chemistry   Paris, France

UNDERGRADUATE RESEARCH

CPG 🔗 — **Computational Physics Group | Multi-Component Flow Code (MRC)**   Nov. 2021 — Dec. 2024
- Implemented reactive flow modeling (combustion), boundary condition patches, and many other features.
- Offloaded & Optimized the Fortran/MPI flow solver using OpenACC on leadership-class HPC systems (OLCF Frontier & Summit).
- Modernized the codebase, adding a test suite, CI, CMake, and a custom build toolchain for case-specific compile-time optimizations.

SSDL 🔗 — **Space Systems Design Lab | GT-II Satellite**   Nov. 2021 — Dec. 2022
- Designed & implemented the satellite's Over-The-Air update (OTA) protocols, on bare-metal, from ground systems to in-orbit handling.

LEADERSHIP & SERVICE

- **Student Volunteer** at **Supercomputing (SC)** 🔗 in Denver, CO, USA and Atlanta, GA, USA   Nov. 2023 & 2024
- **Co-chair** of the **Georgia Tech French Club**   Fall 2022 — Fall 2024

MISCELLANEOUS

- **Languages: English** (Native, U.S. Citizen) and **French** (Native, French Citizen)
- **Keywords:** C++ / CUDA, NCCL, MPI, Python, Bash, Lua, Fortran, CMake, Bazel, LaTeX, Vim, Slurm, ParaView, HPC, CFD …