# COOPER SANDERS

+1 (336) 707-6558 | cs8005@nyu.edu | coopersanders.com | cooper6558 | cooper6558

## Experience

- **Cadence Design Systems [🌐]** *June 2024 - July 2025*
  *Application Engineer* San Jose, CA
  - Implemented multi-phase incremental compile strategies for **hardware-accelerated GPU emulation** flows, saving days of runtime.
  - Integrated place & route flow with proprietary client infrastructure.
  - Completed bring-up projects to: remove consecutive inverters from a DSP with Cadence synthesis infrastructure; migrate RTL for a hardware compressor to Cadence verification infrastructure; verify sous-vide controller with UVM.
  - Acquired **advanced industry training in digital design**, verification, implementation, & EDA.

- **Los Alamos National Lab [🌐]** *May - August 2022*
  *Research Intern* Los Alamos, NM (Remote)
  - Explored parallelization strategies for a novel data sampling algorithm.
  - Optimized naive GPU kernels, yielding order-of-magnitude speedups for importance-based data sampling and **resulting in a published paper**.
  - Contributed to **VizAly-Foresight, an open source compression benchmark** tool for domain scientists.
  - **Presented results** at Clemson's Undergraduate Research Symposium.

- **Clemson University FTHPC Lab [🌐]** *May - August 2021*
  *NSF REU Student* Clemson, SC
  - Studied effects of lossy compression on statistical correlation analysis.
  - Investigated ways to scale genomics workflows to heterogeneous clusters.

- **Clemson University Watt Family Innovation Center [🌐]** *May - August 2020*
  *Research Intern* Clemson, SC (Remote)
  - Hypothesized on statistical predictors of building energy usage.
  - Compared efficiency vs quality-of-results tradeoffs of LSTM and ARIMA machine learning models for energy use forecasting.
  - Trained & deployed forecasting models to **run efficiently at scale** on heterogeneous compute systems.

## Undergraduate Research for Credit

- **High Performance Cluster Computing** *Two years; Five total credit hours*
  *PI: Assoc. Prof. Jon Calhoun*
  Competed at SC Student Cluster Competition '21 & '22 where my team won **Best Poster**, building a mini cluster out of Raspberry Pi's and a real one out of Dell-sponsored hardware. Specialized in HPCG and CUDA, and **presented multiple years** at Clemson's Creative Inquiry Symposium.

- **IBM Watson in the Watt** *One semester; Two total credit hours*
  *PI: Asst. Prof. Hudson Smith & Dr. Carl Ehrett*
  Developed algorithms and frameworks to accelerate the scoring of literacy exams in elementary schools using speech-to-text services from IBM's Watson AI suite, and **presented results at Clemson's AI Symposium**.

- **Machine Learning at Scale** *One year; Two total credit hours*
  *PI: Assoc. Prof. Yuyuan "Lance" Ouyang*
  Accelerated reinforcement learning tasks running on an Nvidia DGX-2 server.

- **History of The Honors College** *One semester; One total credit hour*
  *PI: Assoc. Prof. Joshua Catalano*
  Investigated primary sources in Clemson's special collections archive and conducted oral history interviews to piece together the origins of Clemson University's Honors College.

## Education

- **New York University** *In Progress*
  *Doctor of Philosophy, Electrical Engineering*
  *Advisor: Professor Ramesh Karri; IEEE Fellow & Department Chair*
- **Clemson University** *December 2023*
  *Bachelor of Science, Electrical Engineering*
  *Bachelor of Science, Computer Engineering; Minor, Mathematical Sciences*
  *GPA: **3.89/4.00** (**Honors** & **Magna Cum Laude**)*

## Honors & Awards

- **NSF Graduate Research Fellowship** Honorable Mention 2025.
- New York University School of Engineering Fellow.
- Clemson University Dixon Fellow.
- Clemson University Honors College.
- **Best Poster** IndySCC22 at Supercomputing '22.
- National Science Foundation Research Experiences for Undergraduates Student.
- Clemson Marching Band **Featured Trombone Soloist**.

## Publications

M. H. Fulp, D. Fulp, C. Zou, **C. Sanders**, A. Biswas, M. Smith, J. C. Calhoun. (2023). **Accelerated dynamic data reduction using spatial and temporal properties**. *International Journal of High Performance Computing Applications*, Vol. 37, Issue 5, pp. 539-559. DOI: 10.1177/10943420231180504

## Posters & Presentations

- **C. Sanders**, L. Durham, M. M. Martinez, D. Krasowska, E. Gindlesperger, B. Schlueter, J. C. Calhoun. (2022). **IndySCC 2022: Random Access Clemories**. *International Conference for High Performance Computing, Networking, Storage and Analysis (SC22) Indy Student Cluster Competetion (IndySCC)*. **Best Poster**, IndySCC '22
- **C. Sanders**, J. C. Calhoun. (2022). **Parallelization Strategies for GPU Accelerated Data Sampling**. *9th Annual Summer Undergraduate Research Symposium @ Clemson University*.
- **C. Sanders**, S. Lam, A. Pendris, D. Krasowska, E. Gindlesperger, S. Ranjan. (2021) **SCC2021: Team Death Valley Computing**. *International Conference for High Performance Computing, Networking, Storage and Analysis (SC21) Student Cluster Competetion (SCC)*.
- **C. Sanders**, A. Abaunza, C. Ehrett, D. Herro, CC Bates. (2020). **Leveraging AI for Semi-Automatic Scoring of Running Records**. *Watson-in-the-Watt AI Virtual Symposium @ Clemson University*.
- **C. Sanders**. (2019). **But Can It Run Doom? Building a Breadboard Computer**. *MakerDay 7 @ Clemson University.*
- R. Catoe, E. Gindlesperger, A. Mahmood, T. Myers, **C. Sanders**, W. Smith. (2023). **Targeted Audio for Those Suffering Hearing Loss**. *Clemson Spring 2023 ECE Senior Design Poster Session*.
- T. Joseph, A. Garcia, S. Lam, W. Fey, D. Krasowska, E. Gindlesperger, B. Schlueter, C. Durham, **C. Sanders**, M. M. Herrera, J. C. Calhoun. (2023). **High-Performance Cluster Computing: Learning the Applications of Computing Methodologies in STEM Disciplines**. *18th Annual Focus on Creative Inquiry Poster Forum @ Clemson University*.
- C. Holt, G. Dube, S. Ranjan, **C. Sanders**, A. Bruner, W. Gossman, S. Placke, N. Heitzeg, J. Hollowell, J. C. Calhoun. (2021). **High-Performance Cluster Computing: Teaching Young Scientists and Engineers Future Computing Methodologies**. *16th Annual Focus on Creative Inquiry Poster Forum @ Clemson University*.

*Last Updated: September 1, 2025*