COOPER SANDERS

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Work Experience

- **Cadence Design Systems** *June 2024 - Current*
  Application Engineer San Jose, CA
  - Supporting Nvidia with **hardware-accelerated circuit emulation**.
  - Migrating RTL for Project Zipline, a hardware compressor, to Cadence verification solutions.
  - Advanced **industry training in digital design**, verification, implementation, & EDA.
  - Acquiring certifications in Verilog & SystemVerilog, UVM, RTL-GDSII flow, and proprietary prototyping, emulation, & simulation solutions.

- **Los Alamos National Lab** *May 2022 - August 2022*
  Research Intern Los Alamos, NM (Remote)
  - Hypothesized & experimented on parallelization strategies for a novel data sampling algorithm.
  - Optimized naive GPU implementations, yielding order-of-magnitude speedups 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** *May 2021 - August 2021*
  NSF REU Student Clemson, SC
  - Studied effects of lossy compression on statistical correlation analysis with the Clemson FTHPC lab.
  - Investigated ways to scale genomics correlation analysis workflows to the Clemson Palmetto Cluster.

- **Clemson University** *May 2020 - August 2020*
  Research Intern Clemson, SC (Remote)
  - Hypothesized on and investigated statistical predictors of building energy usage.
  - Compared speed vs quality-of-results tradeoffs of machine learning models for energy use forecasting.
  - Trained & deployed an ML forecasting model to **run efficiently at scale** on heterogeneous compute systems.

Course Based Research

- **High Performance Cluster Computing Creative Inquiry** *Two years; Five total credit hours*
  Dr. Jon Calhoun, PI
  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 Creative Inquiry** *One semester; Two total credit hours*
  Dr. Carl Ehrett, PI
  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**.

- **Artificial Intelligence Creative Inquiry** *One year; Two total credit hours*
  Dr. Yuyuan "Lance" Ouyang, PI
  Accelerated reinforcement learning tasks running on an Nvidia DGX-2 server.

Education

- **Clemson University** *Aug 2019 - Dec 2023*
  BS, Computer Engineering; Minor, Mathematical Sciences
  BS, Electrical Engineering
  GPA: ***3.89/4.00***

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**. In *The International Journal of High Performance Computing Applications (IJHPCA)*. DOI: 10.1177/10943420231180504

Posters & Presentations

- 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. Sanders**, L. Durham, M. M. Martinez, D. Krasowska, E. Gindlesperger, B. Schlueter, J. C. Calhoun. (2022). **Indy SCC 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) **SCC202 : Team Death Valley Computing**. *International Conference for High Performance Computing, Networking, Storage and Analysis (SC21) Student Cluster Competetion (SCC)*.
- 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*.
- **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.*

Honors and Awards

- Best Poster IndySCC22 at Supercomputing '22.
- Honors College.
- Clemson University Dixon Fellow.
- President's List.
- Magna Cum Laude.
- Clemson Marching Band Featured Trombone Soloist.

Last Updated: December 15, 2024