COOPER SANDERS

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WORK EXPERIENCE

• Cadence Design Systems *June 2024 - Current*
Application Engineer San Jose, CA
- Migrating RTL for Project Zipline, a hardware compressor, to Cadence verification solutions.
- Supporting digital design clients with **hardware-accelerated circuit emulation**.
- 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 Clemson FTHPC lab.
- Investigated ways to scale genomics correlation analysis workflows to heterogenous clusters (namely 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 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 using 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.