DAVID KRASOWSKA

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Summary

David Krasowska is a Ph.D. candidate at Northwestern University, advised by Dr. Peter Dinda. His research journey began during his undergraduate studies at Clemson University where he collaborated with Argonne National Laboratory to explore lossy compression for optimizations in HPC scientific applications. He received the DOE Computational Science Graduate Fellowship to fund his graduate studies. Currently, he is exploring scheduling applications across distributed heterogeneous systems with Dr. Pat McCormick and Dr. Li Tang at Los Alamos National Laboratory.

Experience

Visiting Student, Los Alamos National Laboratory   **June 2024 – August 2024**
- Adding support for UPMEM processing in memory (PIM) on Legion runtime system.
- Evaluation of Legion task-based programming models on PIM distributed clusters (in progress HPDC).
- Researching automated mapping of application kernels onto distributed heterogenous systems.

Research Aide, Argonne National Laboratory   **June 2022 – June 2023**
- Expansion of DRBSD-7 work to 3D datasets and black-box regression model (IJHPCA).
- Best ACM SRC Poster at SC '22 for undergraduates.
- Contributed to Libpressio, an Argonne library for compression.

High Performance Computing Creative Inquiry, Clemson University   **June 2021 – December 2022**
- Best poster at Indy Student Cluster Competition at SC '22.
- Student Cluster Competition at SC '21.
- Collaboration with Dell and Intel to configure a pareto optimal performance (wattage) cluster.
- Set up a distributed cluster with package managers, applications, and benchmarks.

Undergraduate Student Researcher, Clemson University   **May 2021 – May 2022**
- Lossy compression research with Argonne National Laboratory and Clemson University FTHPC.
- Analyzing statistical correlations within scientific 2D datasets in relation to compression performance.
- Publication at DRBSD-7 held during SC '21.

Peer-Reviewed Publications

[CLUSTER] *A Lightweight, Effective Compressibility Estimation Method for Error-bounded Lossy Compression*

A. Ganguli, R. Underwood, J. Bessac, **D. Krasowska**, J. C. Calhoun, S. Di, and F. Cappello. doi:10.1109/CLUSTER52292.2023.00028

[IJHPCA] *Black-Box Statistical Prediction of Lossy Compression Ratios for Scientific Data*

R. Underwood, J. Bessac, **D. Krasowska**, J. C. Calhoun, S. Di, and F. Cappello. doi:10.1177/10943420231179417

[DRBSD] *Exploring Lossy Compressibility through Statistical Correlations of Scientific Datasets*

D. Krasowska, J. Bessac, R. Underwood, J. C. Calhoun, S. Di, and F. Cappello. doi:10.1109/DRBSD754563.2021.00011

Teaching / Mentoring

CS 343: Operating Systems (TA) (2025 Winter)

Zhehao Zhu, master's research (2024 - 2025)

Awards

DOE Computational Science Graduate Fellowship Recipient (2023)

First Place for ACM Undergraduate Student Research Competition at Supercomputing (2022)

Best Poster IndySCC22 at Supercomputing (2022)

Education

Northwestern University, Evanston, IL
Ph.D. Candidate in Computer Science, Current
M.S. in Computer Science

Clemson University, Clemson, SC
B.S. in Computer Engineering, 2022