

# DAVID KRASOWSKA

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krasow.dev

## SUMMARY

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David Krasowska is a Ph.D. student at Northwestern University, advised by Dr. Peter Dinda. His research journey began with his mentor during his undergraduate degree at Clemson University, Dr. Jon C. Calhoun. Under his mentor, he collaborated with Argonne to explore lossy compression for optimizations in HPC scientific applications. He was a visiting student at Argonne National Laboratory under Dr. Julie Bessac and Dr. Franck Cappello. This research has led to publications and awards. He has received the DOE Computational Science Graduate Fellowship to fund his studies. At Northwestern, David is exploring processing near memory utilization for datacenters to create a data-centric design.

## EXPERIENCE

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### Research Aide, Argonne National Laboratory

*June 2022 – June 2023*

- Continuation of undergraduate research work at Clemson.
- Expansion 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 using the Palmetto Cluster.
- Analyzing statistical correlations within scientific 2D datasets in relation to compression performance.
- Publication at DRBSD-7 held during SC '21.

## PEER-REVIEWED PUBLICATIONS

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### *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. IEEE International Conference on Cluster Computing (CLUSTER). doi:10.1109/CLUSTER52292.2023.00028

### *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. The International Journal of High Performance Computing Applications (IJHPCA). doi:10.1177/10943420231179417

### *Exploring Lossy Compressibility through Statistical Correlations of Scientific Datasets*

**D. Krasowska**, J. Bessac, R. Underwood, J. C. Calhoun, S. Di, and F. Cappello. 7th International Workshop on Data Analysis and Reduction for Big Scientific Data (DRBSD-7). doi:10.1109/DRBSD754563.2021.00011

## AWARDS

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DOE Computational Science Graduate Fellowship Recipient '23

First Place for ACM Undergraduate Student Research Competition at Supercomputing '22

Best Poster IndySCC22 at Supercomputing '22

## EDUCATION

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**Northwestern University**, Evanston, IL

Ph.D. Student in Computer Science, 2023 - Current

**Clemson University**, Clemson, SC

B.S. in Computer Engineering, GPA 3.7/4.0, 2019 – 2022

## TECHNICAL SKILLS

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Top Languages: C, C++, Python

Other Languages: VHDL, MATLAB, CUDA, MPI

Skills: LLVM, RISC-V, Databases