

## EDUCATION

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### University of Wisconsin - Madison

Traditional PhD in Computer Science

Madison, WI

Expected Graduation June 2028

### Carleton College

Bachelor of Arts: Mathematics (Honors) and Computer Science (Honors)

GPA: 3.95/4.00

Northfield, MN

June 2023

### DIS Study Abroad in Scandinavia

Semester Abroad in Machine Learning

GPA: 4.00/4.00

Copenhagen, Denmark

January to May 2023

### Budapest Semesters in Mathematics

Semester Abroad in Mathematics and Computer Science

GPA: 4.00/4.00

Budapest, Hungary

August to December 2021

## PUBLICATION

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- **FORGE: Procedural Weight Generation for Sparse MoE Inference**  
Chanyoung Moon, Travis Pence, **Daisuke Yamada**, Jiaqi Mo, Vikas Singh, Karthikeyan Sankaralingam  
*Under Review at ASPLOS 2027*
- **Adaptive Scoring and Thresholding with Human Feedback for Robust Out-of-Distribution Detection**  
**Daisuke Yamada**, Harit Vishwakarma, Ramya Korlakai Vinayak  
*Under Review at TMLR 2026*
- **Tree-Structured Orthonormal Decomposition of the Aitchison Simplex**  
**Daisuke Yamada**, Qijun Zhang, Travis Pence, Barbara Bendlin, Federico Rey, Vikas Singh  
*Accepted at ICML 2026*
- **Recursive Binding on a Budget: Subspace Carving in Order- $p$  Tensor Memories**  
Travis Pence, **Daisuke Yamada**, Vikas Singh  
*Accepted at ICML 2026*
- **Composing Linear Layers from Irreducibles**  
Travis Pence, **Daisuke Yamada**, Vikas Singh  
*Accepted at NeurIPS 2025*
- **Selecting Balls From Urns With Partial Replacement Rules**  
Julian Burden, Chandramauli Chakraborty, Qizhou Fang, Lisa Lin, Nasser Malibari, Sammi Matoush, Isaiah Milbank, Zahan Parekh, Martín Prado, Rachael Ren, Qizhao Rong, Maximiliano Sánchez Garza, Eli Sun, Enrique Treviño, **Daisuke Yamada**  
*Accepted at PUMP Journal, 2024*

## EXPERIENCE

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### Research Assistant with Professor Vikas Singh

UW Madison

Madison, MN

Fall 2023 - Present

- Focusing on mathematical foundations of machine learning
- Developing decomposition methods for deep models (i.e, neural networks architectures) to improve efficiency
- Studying reliability and robustness of ML systems under realistic scenarios (e.g., distribution shifts)

**Senior Undergraduate Research advised by Professor Anna Rafferty**  
Carleton College

Northfield, MN  
Fall 2022

- Replicated Image-Adaptive Generative Adversarial Networks in the task of image reconstruction
- Built generative models capable of accurately estimating compressed or degraded images with high confidence
- Analyzed results and proposed new optimization methodologies to reduce run-time
- Tested models against images of different facial features to identify biases in our models

**MIAC Analytics Summer Intern**  
MIAC Analytics

New York City, NY  
Summer 2022

- Worked as a Machine Learning Software Engineer within the Development Group
- Documented and improved a pipeline and template builder of automation software, AiCR, that utilized deep-learning LSTM networks to extract relevant data points from documents
- Developed new functionalities within the software

**MIAC Analytics Winter Intern**  
MIAC Analytics

New York City, NY  
Winter 2021

- Collaborated with a senior software engineer to implement a program recognizing handwritten characters and text boxes using multiple deep learning models in Python
- Delivered a presentation on the project to other work units at the end of the internship program

**Polymath Jr. REU Research**  
Polymath Jr. REU

Remote  
Summer 2021

- Collaborated in a team of 13 to investigate the “preferential” distribution  $X(0, 1)$  in Combinatorial Probability
- Explored some open questions regarding the distribution  $X$  such as the density, expectation, and variance

## TEACHING

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- **Teaching Assistant** at UW Madison 2025  
*Numerical Linear Algebra (CS 513)*
- **Teaching Assistant** at UW Madison 2023, 2024  
*Discrete Mathematics (CS 240)*
- **Head Teaching Assistant** at UW Madison 2024  
*Data Programming I (CS320)*
- **Quantitative Resource Center (QRC) Tutor** at Carleton College 2022  
*Mathematics and Statistics Courses (MATH/STATS 100 ~ 200)*
- **Teaching Assistant and Grader** at Carleton College 2022  
*Multivariable Calculus (MATH 201)*