# KEVIN ASSOGBA

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## OBJECTIVE

I am interested in optimizing I/O for machine learning systems, and exploring the numerical and performance reproducibility of scientific applications, in particular designing storage systems for scalable, fast, and low-overhead reproducibility analytics.

## EDUCATION

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| Ph.D., Computing and Information Sciences | 2021 - Present (expecting 2025) |
| Rochester Institute of Technology | Rochester, New York, USA |

## RELEVANT COURSEWORK

- Foundations of Algorithms
- Distributed Systems
- Foundations of Parallel Computing
- Mathematical Modeling
- Computer Networks
- Foundations of Intelligent Systems

## PEER REVIEWED PUBLICATIONS (full list at https://orcid.org/0000-0002-0377-4576)

[1] Assogba, K., Nicolae, B., Rafique, M. M., 2023. Optimizing the Training of Co-Located Deep Learning Models Using Cache-Aware Staggering. To appear in Proc. of HiPC'23.

[2] Assogba, K., Nicolae, B., Van Dam, H., Rafique, M. M., 2023. Asynchronous Multi-Level Checkpointing: An Enabler of Reproducibility using Checkpoint History Analytics. In Proc. of the SuperCheck Workshop at SC'23.

[3] Assogba, K., Lima, E., Rafique, M. M., Kwon, K. 2023. PredictDDL: Reusable Workload Performance Prediction for Distributed Deep Learning. In Proc. of Cluster'23.

[4] Assogba, K., Arif, M., Rafique, M. M., Nikolopoulos, D. S., 2022. On Realizing Efficient Deep Learning Using Serverless Computing. In Proc. of CCGRID'22.

[5] Arif, M., Assogba, K., Rafique, M. M., 2022. Canary: Fault-tolerant FaaS for Stateful Time-sensitive Applications. In Proc. of SC'22.

## RESEARCH EXPERIENCE

**Argonne National Laboratory, Lemont, IL, USA**                                     2022 - Present
*Research Student Appointee*

- Researched applications of checkpointing techniques to study the numerical and performance reproducibility of high-performance applications, e.g., molecular dynamics and cosmology
- Researched caching and application staggering approaches to minimize the makespan of deep learning workloads and improve GPU resource utilization

**Rochester Institute of Technology, Rochester, NY, USA**                                     2021 - Present
*High-Performance Distributed Systems Lab*
Researched, designed, and implemented novel frameworks and algorithms to support cloud-native deep learning workloads

**Argonne National Laboratory, Lemont, IL, USA**                                     Summer 2023
*Graduate Research Intern*
Researched and implemented asynchronous multi-level checkpointing in the NWChem computational chemistry software package to enable fast and flexible numerical reproducibility analysis of classical molecular dynamics workflows.

## TECHNICAL SKILLS

- C++; Python; Java
- Docker; Kubernetes; Ansible
- PyTorch; TensorFlow
- OpenMP; OpenMPI; CUDA
- Spark; OpenWhisk
- Matlab

## PROFESSIONAL SERVICE & HONORS

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| - Student Volunteer at SuperComputing Conference (SC22, SC23) | 2022, 2023 |
| - Dr. Russell and Melissa Bessette Award for Doctoral Student Excellence, RIT | 2021 |
| - Fulbright Foreign Student Scholarship | 2018 - 2020 |