

# ARNOLD KAZADI

EMAIL: [arnoldnyamabo@gmail.com](mailto:arnoldnyamabo@gmail.com) / [@rice.edu](mailto:@rice.edu)

OTHER: [🏠 website](#) — [🔗 kanz76](#) — [in arnold-kazadi](#) — [G google scholar](#)

## RESEARCH INTERESTS

I am mainly interested in graph neural networks (GNNs), both in their theoretical and practical (i.e., applications) aspects. I am currently working on the application of GNNs to the prediction/emulation of numerical weather prediction and floods by designing Physics-inspired GNNs. I see myself working both on learning-based simulators for climate and Physics dynamics.

## EDUCATION

### Rice University

*Ph.D. in Computer Science*

Houston, United States

*June 2022 - Present*

- Thesis Project: Flood simulation with Graph Neural Networks.
- Advisor: Arlei Silva ([website](#))

### Northwestern Polytechnical University

*Master's degree in Computer Science*

Xi'an, China

*April 2022*

- Thesis Title: "Prediction of Drug-Drug Interactions Based on Co-Attended Substructures." (Best Master's degree thesis award)

### Zhejiang Normal University

*Bachelor's degree in Software engineering*

Jinhua, China

*June 2019*

## PUBLICATIONS

- [1] **Arnold Kazadi**, James Doss-Gollin, Arlei Silva [Pluvial Flood Emulation with Hydraulics-informed Message Passing](#), ICML 2024
- [2] **Arnold Kazadi**, James Doss-Gollin, Antonia Sebastian, Arlei Silva [FloodGNN-GRU: A Spatio-Temporal Graph Neural Network for Flood Prediction](#), Environmental Data Science journal 2024
- [3] Schreck, J., Sha, Y., Chapman, W., Kimpara, D., Berner, J., McGinnis, S., **Kazadi, A.**, Sobhani, N., Kirk, B., Gagne II, D.J. [Community Research Earth Digital Intelligence Twin \(CREDIT\)](#), <http://arxiv.org/abs/2411.07814>, 2024
- [4] **Arnold Kazadi**, Ming Zhang, Jingbo Zhou ["Protein Function Prediction with Primary-Tertiary Hierarchical Learning"](#) BIBM 2023
- [5] **Arnold Kazadi**, James Doss-Gollin, Antonia Sebastian, Arlei Silva ["Flood Prediction with Graph Neural Networks"](#) Tackling Climate Change with Machine Learning: workshop at NeurIPS 2022
- [6] Bing-Xue Du, Peng-Cheng Zhao, Bei Zhu, Siu-Ming Yiu, **Arnold K Nyamabo**, Hui Yu, Jian-Yu Shi ["MLGL-MP: a Multi-Label Graph Learning framework enhanced by pathway interdependence for Metabolic Pathway prediction"](#), Bioinformatics, 38
- [7] **Arnold K Nyamabo**, Hui Yu, Zun Liu, Jian-Yu Shi ["Drug-Drug Interaction Prediction with Learnable Size-Adaptive Molecular Substructures"](#), Briefings in Bioinformatics, 2021;, bbab441
- [8] **Arnold K Nyamabo**, Hui Yu, Jian-Yu Shi, ["SSI-DDI: substructure-substructure interactions for drug-drug interaction prediction"](#), Briefings in Bioinformatics, 2021;, bbab133

## RESEARCH EXPERIENCE

DEC 2021 - JUL 2022

**Research Internship at Baidu Research**, Beijing (China)

**Supervisor:** Dr. [Jingbo ZHOU](#)

Worked on the application of graph neural networks for protein function prediction.

---

MAY 2024 - PRESENT

**Research Internship** at **NSF-National Center for Atmospheric Research**, Boulder, CO (USA)  
**Supervisor:** David John Gagne II  
Working on the application of graph neural networks for global weather prediction.

---

## PROGRAMMING PROFICIENCY

---

LANGUAGES: Python, C (average), Java (average), SQL.

LIBRARIES: PyTorch (DDP, FSDP), PyTorch Geometric, DGL, Tensorflow (working knowledge), Paddle.

## SKILLS

---

LANGUAGES: English, French (spoken & written at professional proficiency)  
Chinese (spoken & written at intermediate level)

## PROFESSIONAL SERVICE

---

MENTORING: [NEWT Mentoring Program 2024](#)

[Houston Action Research Teams Spring 2024](#)

TEACHING ASSISTANT: Deep Learning for Vision & Language - Graduate / Spring 2022

Graduate Design and Analysis of Algorithms - Graduate / Fall 2023

## HONORS, AWARDS, AND COMPETITIONS

---

**Ken Kennedy-HPE Cray Fellowship 2024-2025**

<https://kenkenedy.rice.edu/fellowships/cray>