

# AASHISH PANDEY

1404 Shannon Pl, Carrollton, Texas, 75006

Phone: +1 580-695-6920 || Website : [helloaashish.github.io](https://helloaashish.github.io)

E-mail: [aashishpandey@my.unt.edu](mailto:aashishpandey@my.unt.edu)

## BACKGROUND

---

My research is focused on developing parallel and scalable algorithms for analyzing large-scale dynamic networks. I am interested in exploring the evolving interactions within various systems of high-performance computing, specifically in patterns related to I/O access and interprocess communications.

## TECHNICAL STRENGTHS

---

**Programming Languages** C, C++, Cuda, Python, Java, Matlab

**Skills** Data Structure and Algorithms, ML, Parallel Programming, Dynamic Networks

**Technologies** OpenMP, MPI, TensorFlow, Keras, Scikit-Learn, Pandas, Dask, Tableau

## EDUCATIONAL QUALIFICATION

---

**Ph.D. in Computer Science**

*Expected Graduation: 2025*

UNIVERSITY OF NORTH TEXAS

GPA: 4.0

Thesis Title: Towards Dynamic Network Analysis: Scalable Algorithms and Realistic Benchmarks.

Supervisor: *Dr. Sanjukta Bhowmick*

**M.S in Computer Science**

*2023*

UNIVERSITY OF NORTH TEXAS

GPA: 4.0

**B.S in Computer Science**, Minor in Mathematics

*2019*

UNIVERSITY OF NORTH TEXAS

GPA: 3.7

## WORK EXPERIENCE

---

- **Computing Graduate Student Intern**

*May 2024 - Aug 2024*

Lawrence Livermore National Laboratory

Livermore, California

- Run and collect I/O traces for AI-driven workflows and their components on LC machines.
- Analyze and visualize dependency graph for these workflows and identify bottleneck.
- Use mitigation strategies to reduce the bottleneck and improve workflow performance.

- **Research Associate Intern**

*Summer 2023 - May 2024*

Global Computing Laboratory

University of Tennessee, Knoxville

- Creating tutorial material for **ANACIN-X**, a software package developed by researchers at GC Lab to identify the source and degree of non-determinism in MPI applications.
- Collaborating with other scientists to develop a jupyter-notebook implementation of the software, also improve usability and readability of software.

- **Research Assistant**

*Fall 2020 - Present*

Department of Computer Science & Engineering

University of North Texas

- Designing and implementing parallel algorithms for dynamic network analysis.
- Presenting research works in conferences and workshops.

- **Teaching Assistant** Software Development Capstone

Spring 2020

Department of Computer Science & Engineering  
University of North Texas

- Mentoring undergraduate students on various stages of software development, programming tools and languages.
- Assisting instructor during lectures, designing assignments, and grading.

## PUBLICATIONS

---

- J. Marquez, B. Bogale, A. Pandey, N. Tan, L. Whitnah, S. Bhowmick, M. Taufer, *Teaching Non-determinism in High Performance Applications* EduHPC Lightning Talk Summary. In Proceedings of the SC '23 Workshops of The International Conference on High Performance Computing, Network, Storage, and Analysis (SC-W '23). Association for Computing Machinery, New York, NY, USA, 374–378. <https://doi.org/10.1145/3624062.3625542>
- S. Srinivasan, A. Khanda, S. Srinivasan, A. Pandey, S. K. Das, S. Bhowmick, and B. Norris, "A Distributed Algorithm for Identifying Strongly Connected Components on Incremental Graphs," 2023 IEEE 35th International Symposium on Computer Architecture and High Performance Computing (SBAC-PAD), Porto Alegre, Brazil, 2023, pp. 109-118, doi: 10.1109/SBAC-PAD59825.2023.00020.

## POSTERS

---

- Khanda. A, Shovan. SM, Pandey. A , Hosseini. F, Das. S K, Norris. B, and Bhowmick S, *Efficient Approaches to Analyzing Large Dynamic Networks* The International Conference for High Performance Computing, Networking, Storage and Analysis, November 17-24, 2024, Atlanta, GA, USA.
- Pandey. A, Khanda. A, Srinivasan. S, Srinivasan. S, Shovan. S, Hosseini. F, S. K. Das, Norris. B, and Bhowmick S, *Scalable Algorithms for Analyzing Large Dynamic Networks using CANDY* The International Conference for High Performance Computing, Networking, Storage and Analysis, November 12-17, 2023, Denver, CO, USA.  
[https://sc23.supercomputing.org/proceedings/tech\\_poster/poster\\_files/rpost210s3-file2.pdf](https://sc23.supercomputing.org/proceedings/tech_poster/poster_files/rpost210s3-file2.pdf)
- Pandey. A, Hosseini. F, Khanda. A, Srinivasan. S, Srinivasan. S, S. K. Das, Norris. B, and Bhowmick S, *Improving Graph Property Computation in Large Dynamic Networks with CANDY*, CMD-IT/ACM Richard Tapia Celebration of Diversity in Computing Conference, 2023
- Pandey, A., Khanda, A., Srinivasan, S., Bhowmick, S., Das, S. K., & Norris, B. (n.d.). *CANDY: An efficient framework for updating properties on large dynamic networks*. The International Conference for High Performance Computing, Networking, Storage and Analysis, November 13-18, 2022, Dallas, Tx, USA.  
[https://sc22.supercomputing.org/proceedings/tech\\_poster/poster\\_files/rpost153s3-file3.pdf](https://sc22.supercomputing.org/proceedings/tech_poster/poster_files/rpost153s3-file3.pdf)
- Srinivasan, S., Pandey, A., Khanda, A., Srinivasan, S., & Das, S. K. (n.d.). *Parallel framework for updating large scale dynamic networks*. The International Conference for High Performance Computing, Networking, Storage and Analysis, November 13-18, 2021, St. Louis, MO, USA.  
[https://sc21.supercomputing.org/proceedings/tech\\_poster/poster\\_files/rpost162s2-file2.pdf](https://sc21.supercomputing.org/proceedings/tech_poster/poster_files/rpost162s2-file2.pdf)

## CURRENT RESEARCH WORKS

---

- **Parallel Identification of Strongly Connected Components in Large Scale Dynamic Graphs**
  - Developing a **shared-memory** and **GPU** implementation of an algorithm to identify Strongly Connected Components in dynamic graphs.
  - Collaboration: University of Oregon, Missouri Institute of Science and Technology
- **Streaming Network Generation using Graph-Based Time Series Model**
  - Creating a time series model to learn the temporal and structural properties of streaming network data.
  - Developing a tool for generating synthetic dynamic networks.

➤ Collaboration: Sandia National Laboratory

## PARTICIPATION

---

- **Student Volunteer** *2021, 2022, 2023, 2024*
  - The International Conference for High Performance Computing, Networking, Storage and Analysis
- **Teaching Assistant** *Feb 19 - Feb 21, 2021*  
OurCS@DFW Workshop, Dallas, Texas.

## COURSE WORKS

---

- **Graduate**  
Big Data and Data Science, Methods of Numerical Computations, Graph Theory, Computer Architecture, Distributed and Parallel Database, Machine Learning, Deep Learning, Artificial Intelligence, Bio-computing, Natural Language Processing, Feature Engineering, Scientific Data Visualization, Deep Learning in Biology
- **Undergraduate**  
Digital Image Processing, Algorithms, Programming Languages, Data Structures, Differential Equations, Real Analysis, Automata Theory, Secure e-commerce, Cryptography

## ORGANIZATIONS

---

- Youth and Sports Coordinator, Lumbini Service Society *2021 - 2023*
- Charter Member, Dallas Lumbini Lions Club *2022 - 2024*
- Member, Phi Theta Kappa Honor Society *Jan 2016 - Present*
- Member, Nepalese Student Association, University of North Texas *Sep 2017 - Present*