

Adhilsha Ansa

Bhubaneswar, India | adhilsha.a@niser.ac.in | +91 9497 887 421
[Personal Website](#) | github.com/AdhilshaA | [ORCID](#)

Introduction

I am a final-year student in the Integrated Master of Science program at the [National Institute of Science Education and Research \(NISER\)](#), Bhubaneswar. Currently, I am a part of [SMLab](#) at NISER, expanding my expertise in Deep Learning, focused on Graph Learning and an interest in exploring Multi-modal applications.

Research interests: Graph Learning, Sequence Learning, Computer Vision, Lottery Ticket Hypothesis

Education

National Institute of Science Education and Research, Bhubaneswar, IN 2020 – 2025
Integrated M.Sc. in Physical Science (major) and Computer Science (minor)

- CGPA: 8.03/10.0 ([Provisional Transcript](#), [CS Transcript excerpt](#), [Bonafide Certificate](#))
- **CS Coursework:** Programming and Data Structures, Theory of Computation, Discrete Structures and Computation, Design and Analysis of Algorithms, Machine Learning, Advanced Machine Learning, Parameterized Algorithms

Coursera education

Online

- Machine Learning Specialization ([certificate](#))
 - Supervised Machine Learning: Regression and Classification ([certificate](#))
 - Advanced Learning Algorithms ([certificate](#))
 - Unsupervised Learning, Recommenders, Reinforcement Learning ([certificate](#))
- Deep Learning Specialization (ongoing)
 - Neural Networks and Deep Learning ([certificate](#))
 - Improving Deep Neural Networks: Hyperparameter Tuning, Regularization and Optimization ([certificate](#))
 - Structuring Machine Learning Projects (ongoing)

Projects

Large Neural Networks at a fraction 2023

- A project on reducing and testing the Lottery Ticket Hypothesis on a Large Neural Network using a combination of Pruning and Quaternion architecture. Publishing a conference paper in NLDL 2024.
- Tools Used: Deep Learning, PyTorch, Image processing, Python

Oversampling in Heterogeneous graphs 2024

- Extending SMOTE to heterogeneous graph networks to overcome class imbalance issues. *Paper under review.*
- Tools Used: Deep Learning, Graph Neural Networks, Data Processing, PyTorch, Python

Long context LLM support

Experimental

- Experimented developing a memory architecture for Large Language Models (LLMs) to support long context.
- Tools Used: Natural Language Processing (NLP), Large Language Models (LLMs), PyTorch, Python

Representation Learning in Graph using modified Mamba

Current

- Developing a new methodology for modified Mamba sequence Learning on Graphs. Ongoing work.
- Tools Used: Sequence Learning, Graph Neural Networks, PyTorch, Python

Understanding Oversmoothing in Message Passing Neural Networks

Current

- Trying to understand Oversmoothing from a different perspective. Ongoing thesis work.
- Tools Used: Graph Neural Networks, PyTorch, Python

Experience

Paper Presentation - NLDL 2024, UiT Norway Jan 2024

- Presented the paper "Large Neural Networks at a Fraction" at the Northern Lights Deep Learning (NLDL) conference 2024 as both a presentation and as a poster. ([invite](#), [slides](#), [poster](#))

SMLab Talks, NISER Bhubaneswar, India 2024 - 2025

- Gave some Lab talks on [1-bit LLMs](#), [Vision-Mamba](#), [LLM self-correction via RL](#), and [Large Concept Models](#).

Mentoring Students, NISER Bhubaneswar, India 2023 - 2024

- Mentored two Machine Learning Projects in the CS460 (2024) course under Dr. Subhankar Mishra.
- Assisted in the First Year of CS Labs (2023) as TA under Dr. Anup Kumar Bhattacharya.

ACM India Winter School, IIT Patna, India Dec 2023

- Participated in the ACM India Winter School on "Recent Trends in AI/ML for Industry 4.0" hosted by the Indian Institute of Technology Patna and partly sponsored by Google Research India. ([certificate](#))

Publications

Large Neural Networks at a Fraction Jan 2024

Aritra Mukhopadhyay[†], [Adhilsha Ansa](#)[†], Subhankar Mishra

[†]Equal contribution

Proceedings of the *5th Northern Lights Deep Learning Conference (NLDL)*, [PMLR 233:165-173](#)

Additional Experience And Awards

[INSPIRE Scholarship for Higher Education \(SHE\)](#) 2020 - 2025

Technologies

Programming Languages: C, Python, Fortran

Skills: Deep Learning, Supervised Learning, PyTorch, Natural Language Processing (NLP), Large Language Models (LLM), Data Processing, Graph Networks, Synthetic Data Generation, Numerical simulations

Language skills

- English - Fluent
 - Proof of English Medium of Instruction ([certificate](#))
 - TOEFL Score ([Score Report](#))