BIOGRAPHICAL SKETCH

Diganta Misra
Research Student and Founder
Mila/ Landskape/ Morgan Stanley/ VITA
Montréal, Quebec
Canada

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Blog: https://blog.paperspace.com/author/diganta/

(a) Education

UdeM (Mila)	Montréal, Canada	CS	Research MSc, 2023 (Advisor - Irina Rish)
KIIT	Bhubaneswar, India	EEE	B.Tech, 2020 (Advisor - Bhargav Appassani)

(b) Experience Overview

2022 – present	Researcher, Morgan Stanley
2021 – present	Visiting Research Scholar, VITA (UT-Austin)
2020 – present	Research Associate, Laboratory of Space Research - Hong Kong University
2019 – present	Founder and Researcher, Landskape
2020 – 2021	Machine Learning Engineer, Weights & Biases
2020 – 2021	Deep Learning Content Developer, Paperspace
2018 – 2018	Deep Learning Research Intern, Bennett University
2018 – 2018	Data Science Intern, CSIR-CDRI
2018 – 2018	Intern, Indian Institute of Technology - Kharagpur
2017 – 2017	Exchange Student, Bangkok University

(c) Research and Professional Experience

Researcher, Morgan Stanley

Building the largest open source time series transformer API along with scaling laws analysis with Kashif Rasul. Under Kashif Rasul, I am working on developing novel model reprogramming methods to solve task incremental continual learning problems in financial time series applications.

Visiting Research Scholar, VITA, UT-Austin

Working under the guidance of Dr. Zhangyang Wang and Tianlong Chen on the construction of progressive pruning approaches in the sequential learning regime under resource constraints.

Founder, Landskape

Landskape is a small deep learning fundamental research group that I founded in September 2019 with the help of Kris Akira Stern (HKU).
At Landskape, we work on deep learning theory, optimization, attention mechanisms, nonlinear dynamics, continual learning, and efficient network design.
Our group includes MILA, UIUC, IIT-G, KAIST, HKU, and CMU students and researchers with collaborators from Google Brain, Imperial College, and NUS.
At Landskape, I am principally supervised by Assc. Prof. Jaegul Choo (KAIST).
Visit our website for further details on publications and members/ affiliates.

Machine Learning Engineer, Weights & Biases

Working in the Frameworks and Integration team. As a Machine Learning Engineer, I primarily focus on ensuring seamless integration of the W&B API into several deep learning frameworks.
Also responsible for reproducibility pipelines.

Research Associate, Laboratory of Space Research - Hong Kong University (LSR-HKU)

Working on Planetary Nebulae analysis using deep learning and computer vision-based approaches. Our goal is to use generative modeling to understand the different structural variations of PNe, as well as to construct an end-to-end pipeline for visually analyzing PNe, as well as developing their spectrum profiles.
Mentored by Prof. Quentin A. Parker.
Visit my LSR profile in the HKU LSR directory website.

Deep Learning Content Developer, Paperspace

Worked on constructing extensive reviews of state-of-the-art and novel papers in the domain of computer vision along with code implementation in PyTorch using the resources offered by Paperspace Gradient. Developed a blog series on *Attention Mechanisms in Computer Vision* along with reviews of papers from CVPR and ECCV 2020. The published articles can be viewed on my profile.

Deep Learning Research Intern, Bennett University

Successfully completed the *NVIDIA DLI workshop* and the *Artificial Intelligence and Deep Learning Workshop* by Bennett University in collaboration with University College London and AWS Educate. I worked as the group leader of a team of five under the co-supervision of Prof. Dr. Deepak Garg and Dr. Suneet Gupta. I participated in two research projects during the duration of the internship, which include:

- Class-unbalanced visual recognition of galaxy images.
- Fine-grained classification of crop-based diseases.

The projects included documentation and a panel presentation from the final week.
In addition, I was selected to be part of the LeadingIndia.AI team where I supervised the hands-on labs for the workshops held in *Galgotias University* and *Charusat University* in addition to the basic AI training sessions.
Further, I was invited as a collaborator for a project "Large-Scale Meta-Analysis of Genes Encoding Pattern in Wilson's Disease" with *Indian Institute of Technology, Varanasi (IIT-BHU)* under the supervision of Dr. Amrita Chaturvedi.

Data Science Intern, CSIR-CDRI †

During this internship, I was involved in building the analytical pipeline, data collection, pre-processing of data, cleaning of data, Geo-spatial Analysis of data and Document writing for the project on understanding demographics of Venture Capital and Early Seed Investments. As part of a three-person team, advised and mentored by Dr. Sukant Khurana.

† Council of Scientific and Industrial Research - Central Drug Research Institute.

Intern, Indian Institute of Technology - Kharagpur

Basic algorithmic techniques were studied using functional programming languages, Lisp and Prolog, under the guidance of Assc. Prof. Pawan Kumar.

Exchange Student, Bangkok University

Served as a primary instructor for cultural engagements along with teaching basic English and computer science to primary-grade students at RangsonWittaya School, Nakhon Sawan under the AIESEC SDG #4 program. Was also part of culture exchange, entrepreneurship, and social service programs at Bangkok University.

(d) Publications (Google Scholar)

1. *Diganta Misra*, **Mish: A Self Regularized Non-Monotonic Activation Function**, Published at the *31st British Machine Vision Conference (BMVC)*, 2020.
2. *Diganta Misra*, Trikay Nalamada, Ajay Uppili Arasanipalai, and Qibin Hou, **Rotate to Attend: Convolutional Triplet Attention Module**, Accepted to *IEEE Winter Conference on Applications of Computer Vision (WACV)*, 2021.
3. *Diganta Misra*, Bharat Runwal, Tianlong Chen, Zhangyang Wang, and Irina Rish, **APP: Anytime Progressive Pruning**, Accepted to *Dynamic Neural Network Workshop (DyNN), ICML; Sparsity in Neural Networks (SNN) workshop; Continual Lifelong Learning (CLL) Workshop, ACML*, 2022 and *SlowDNN workshop*, 2023.
4. *Diganta Misra*, Mukund Varma T., Multiple authors, **Beyond the Imitation Game: Quantifying and extrapolating the capabilities of language models**, Preprint, 2022.
5. Timothée Lesort, Oleksiy Ostapenko, *Diganta Misra*, Md Rifat Arefin, Pau Rodriguez, Laurent Charlin, Irina Rish, **Scaling the Number of Tasks in Continual Learning**, Accepted to *Conference on Lifelong Learning Algorithms (CoLLAs) workshop*, 2022.
6. *Diganta Misra*, Rahul Pelluri, Vijay Kumar Verma, Bhargav Appasani and Nisha Gupta, **Genetic Algorithm Optimized Inkjet Printed Electromagnetic Absorber on Paper Substrate**, Published at *IEEE International Conference on Applied Electromagnetics, Signal Processing and Communication (AESPC)*, 2018.

(e) Invited Talks and Podcasts

1. **Invited Talk** - *Modality agnostic adaptation in deep learning* - IBM Generalization Meeting
2. **Invited Talk** - *APP: Anytime Progressive Pruning* - Continual AI Seminar series
3. **Course Presentation** - *APP: Anytime Progressive Pruning* - Mila Neural Scaling Laws course seminar
4. **Research presentation** - *APP: Anytime Progressive Pruning* - ML Collective Research Jam 8
5. **Podcast** - *Mish: A Self-Regularized Non-Monotonic Activation Function* - Link
   Episode 7 with Miklos Toth on the Machine Learning Cafe podcast.
6. **Invited Talk** - *Mish: A Self Regularized Non-Monotonic Activation Function* - Link
   Presented internally at the Sicara weekly deep learning club.
7. **Contributed Talk** - *Non-Linear Dynamics in Neural Networks*
   Presented at the Deep Learning Colloquium at the University of Athens.
8. **Invited Talk** - *Mish: A Self Regularized Non-Monotonic Activation Function* - Link
   Presented at the Computer Vision Talks.

9. **Invited Corporate Talk** - *Mish: A Self Regularized Non-Monotonic Activation Function*
   Presented virtually at the Bangalore Robert Bosch office.
10. **Podcast** - *Chatting with a data Science team ft DeepWrex Technologies* - Link
    Episode 20 with Ankit Jha on The World Is Ending Podcast.
11. **AMA** - *Mish: A Self Regularized Non-Monotonic Activation Function*
    Ask Me Anything (AMA) session on my research with the Weights&Biases (WandB) team.

(f) Research Interests

Sparsity	Non-linear dynamics	Sequential learning
Timeseries analysis	Group theory	Transfer learning

(g) Languages

English Odia Hindi

(h) Additional Experience

I also served as Content Writer, Growth Associate, Developer, Volunteer, and Editor at firms like Digital Vidya, Digimyx, COSO IT, Criotam Technologies Private Limited, United Nations Volunteers (UNV), AIESEC Bhubaneswar Chapter and The Insider Tales.

(i) Projects

For projects and open source contributions, please visit my GitHub Profile.

(j) Achievements and References

Complete list of achievements and certifications are available upon request.

1. **DIRO x Quebec Ministry of Higher Education International Students Scholarship, 2022**
2. **UNIQUE AI Excellence Scholarship, 2022**
3. **MILA Entrepreneur Grant, 2022**
4. **Paperswithcode Top Contributor award, 2022**

(k) Academic Service

1. Served as TA for INF-8225: Probabilistic learning course offered at Polytechnique University, Montreal in Winter 2022 under Chris Pal.
2. Served as a member of the program committee and reviewer for CoLLA 2022.
3. Organized and led the W&B x ML Reproducibility Challenge in Winter and Spring 2021.
4. Organizer of the DL Theory reading group at MILA.
5. Selected as an entrepreneur in residence for the MILA Winter Entrepreneur Cohort 2022.