

BIOGRAPHICAL SKETCH

Diganta Misra

Research Student and Founder
Mila/ Landskape AI/ CMU
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United States

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(a) Education

UdeM (Mila)	Montréal, Canada	CS	Research MSc, 2021 - 2024
KIIT	Bhubaneswar, India	EEE	B.Tech, 2016 - 2020
Ravenshaw College	Cuttack	Senior Secondary (+2)	2014-2016
Stewart School	Cuttack	Secondary	2002-2014

(b) Experience Overview

2023 – present	Research Associate I, Carnegie Mellon University (CMU) - HSL (RI)
2023 – present	LLM Instructor, Towards AI
2021 – present	Remote Research Scholar, VITA (UT-Austin)
2020 – present	Research Affiliate, Laboratory of Space Research - Hong Kong University
2019 – present	Founder and Researcher, Landskape AI
2022 – 2023	Machine Learning Researcher, Morgan Stanley
2020 – 2021	Growth 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	Summer Exchange Intern, Bangkok University (AIESEC)

(c) Research and Professional Experience

Research Associate I, CMU-HSL, RI

Working under the supervision of [Prof. Fernando De La Torre](#) on the research topic of fast adaptation and personalisation of continually evolving diffusion text to image generative models in collaboration with Apple.

Machine Learning Researcher, Morgan Stanley

Contributed to the largest open source time series transformer API along with scaling laws analysis with [Kashif Rasul](#). Under [Kashif Rasul](#), I worked on developing novel model reprogramming methods to solve task incremental continual learning problems in financial time series applications.

Remote 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 + President + Researcher, Landscape AI

Landscape AI is a small non-profit deep learning fundamental research group that I founded in September 2019 with the help of Kris Akira Stern (HKU).

At Landscape AI, 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 Landscape AI, I am principally supervised by [Assc. Prof. Jaegul Choo \(KAIST\)](#).

Visit our [website](#) for further details on publications and members/ affiliates.

Growth Machine Learning Engineer, Weights & Biases

Worked in the Frameworks and Integration team. As a Machine Learning Engineer, I was primarily focused on ensuring seamless integration of the W&B API into several deep learning frameworks (Avalanche and MMDetection).

Also responsible for reproducibility pipelines and leading the W&B Reproducibility Challenge for 2 editions in 2021.

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

Worked on Planetary Nebulae (PNe) analysis using deep learning and computer vision-based approaches. Our project involved the use of generative modeling to understand the different structural variations of PNe, as well as to construct an end-to-end pipeline for visually analyzing PNe and 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 at [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 five-person team 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 in the final week.

In addition, I was selected to be part of the [LeadingIndia.AI](#) team where I supervised the hands-on lab sessions for the workshops held at *Galgotias University* and *Charusat University* in addition to the basic AI training sessions.

In addition, 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](#). The resultant paper won the best student paper at the Springer IC4S conference, 2018.

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 in tech and biotech startups. I was the group-lead 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 the primary instructor for cultural engagements along with teaching basic English and computer science to primary school students at RangsonWittaya School in Nakhon Sawan under the [AIESEC](#) United Nations SDG #4 program. I was also a student in the culture exchange, entrepreneurship, and social service programs at Bangkok University.

(d) Publications ([Google Scholar](#))

1. *Diganta Misra, Mish: A Self-Regularized Nonmonotonic Activation Function*, Published at the *31st British Machine Vision Conference (BMVC)*, 2020.
2. *Diganta Misra, Trikey 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 2022; Sparsity in Neural Networks (SNN) workshop; Continual Lifelong Learning (CLL) Workshop, ACML, 2022 and SlowDNN workshop, 2023*.
4. *Alex Gu, Ria Sonecha, Saaketh Vedantam, Bharat Runwal, Diganta Misra, Pruning Code-BERT for Improved Code-to-Text Efficiency*, *Sparsity in Neural Networks (SNN) workshop* at *ICLR*, 2023.
5. *Divyansh Singhvi, Andrej Erkelens, Raghav Jain, Diganta Misra, Naomi Saphra, Shapley Interactions for Complex Feature Attribution*, *NeurIPS ATTRIB workshop*, 2023.
6. *Nizar Islah, Diganta Misra, Timothy Nest, Matthew Riemer, Mitigating Mode Collapse in Sparse Mixture of Experts*, *New in ML workshop, NeurIPS*, 2023.
7. *Ethan Kim, Diganta Misra, SPIRIT: Zero Shot Information Retrieval Domain Transfer with Soft Prompts*, Under Review, 2023.
8. *Diganta Misra, Agam Goyal, Bharat Runwal, Pin Yu Chen, Uncovering the Hidden Cost of Model Compression*, Under Review, 2023.

9. Diganta Misra, Mukund Varma T., Multiple authors, **Beyond the Imitation Game: Quantifying and extrapolating the capabilities of language models**, TMLR, 2023.
10. 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)*, 2023.
11. 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.
12. Diganta Misra, Sachi Nandan Mohanty, Mohit Agarwal, Suneet K Gupta, **Convolutd cosmos: classifying galaxy images using deep learning**, ICDMAI, 2019.
13. Diganta Misra, Anurag Tiwari, Amrita Chaturvedi, **Large-Scale Meta-Analysis of Genes Encoding Pattern in Wilson's Disease**, (Best Paper Award), IC4S, 2018.

(e) **Invited Talks and Podcasts**

1. **Research Presentation** - *Reprogramming under constraints* - [MLC Research Jam 17](#)
2. **Fireside Talk** - *Reprogramming under constraints* - [Cohere for AI](#)
3. **Invited Talk** - *Multi-Domain Expert Layers* - [VITA, UT-Austin](#)
4. **Invited Talk** - *Learning Under Constraints* - [TU Eindhoven](#)
5. **Invited Talk** - *Modality agnostic adaptation in deep learning* - [IBM Generalization Meeting](#)
6. **Invited Talk** - *APP: Anytime Progressive Pruning* - [Continual AI Seminar series](#)
7. **Course Presentation** - *APP: Anytime Progressive Pruning* - [Mila Neural Scaling Laws course seminar](#)
8. **Invited Talk** - *From Smooth Activations to Robustness to Catastrophic Forgetting* - [Weights & Biases Deep Learning Salon](#)
9. **Research presentation** - *APP: Anytime Progressive Pruning* - [MLC Research Jam 8](#)
10. **Podcast** - *Mish: A Self-Regularized Non-Monotonic Activation Function* - [Link](#)
Episode 7 with Miklos Toth on the [Machine Learning Cafe](#) podcast.
11. **Invited Talk** - *Mish: A Self Regularized Non-Monotonic Activation Function* - [Link](#)
Presented internally at the [Sicara](#) weekly deep learning club.
12. **Contributed Talk** - *Non-Linear Dynamics in Neural Networks*
Presented at the Deep Learning Colloquium at the University of Athens.
13. **Invited Talk** - *Mish: A Self Regularized Non-Monotonic Activation Function* - [Link](#)
Presented at the [Computer Vision Talks](#).
14. **Invited Corporate Talk** - *Mish: A Self Regularized Non-Monotonic Activation Function*
Presented virtually at the Bangalore Robert Bosch office.
15. **Podcast** - *Chatting with a data Science team ft DeepWrex Technologies* - [Link](#)
Episode 20 with Ankit Jha on [The World Is Ending Podcast](#).
16. **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 Learning under constraints Transfer learning
Robustness Generative Modeling Representation learning

(g) Languages

English Odia Hindi German

(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 is available on request.

1. **DIRO x Quebec Ministry of Higher Education International Students Scholarship, 2023**
2. **DIRO x Quebec Ministry of Higher Education International Students Scholarship, 2022**
3. **UNIQUE AI Excellence Scholarship, 2022**
4. **MILA Entrepreneur Grant, 2022**
5. **AMII AI Week Fellowship, 2022**
6. **Paperswithcode Top Contributor award, 2022**
7. **6x Model United Nations Best Delegate Award**
8. **Alumni Distinction Award, Stewart School**

(k) Academic Service

1. Serving as the organizer, AC and PC committee member of the New in ML workshop at NeurIPS 2023.
2. Volunteering at NeurIPS 2023.
3. Served as a reviewer for: CVPR 2024, TMLR, ICASSP 2023, ICASSP 2024, CoLLAs 2024, Efficient Systems for Foundation Models workshop at ICLR 2023, Continual Learning AI UnConference and Springer Soft Computing.
4. Served on the program committee and was a reviewer for CoLLA 2022 and 2023.
5. Serving as the MDEL Modeling lead for the Multi-Domain Expert Layers project initiated by Ontocord.ai.
6. Served as annotator for a project at McGill University to evaluate LLM capabilities for generating quizzes based on scientific contexts.

7. Served as TA for INF-8225: Probabilistic learning course offered at Polytechnique University, Montreal in Winter 2022 under Chris Pal.
8. Served as TA for IFT-6390: Machine learning course offered at UdeM, Montreal, in Fall 2023 under Ioannis Mitliagkis.
9. Served as a mentor for the McMedHacks 2023 workshop organized by McGill University.
10. Served as TA for INF8245E: Machine Learning course offered at Polytechnique University, Montreal in fall 2023 under Sarath Chandar.
11. Served as a mentor and lecturer for the Neuromatch Academy 2021.
12. Organized and led the W&B x ML Reproducibility Challenge in Winter and Spring 2021.
13. Organizer of the DL Theory reading group at MILA.
14. Selected as an entrepreneur in residence for the MILA Winter Entrepreneur Cohort 2022.