BIOGRAPHICAL SKETCH

Diganta Misra
ELLIS, Amazon, IMPRS-IS PhD Fellow
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Google Scholar: https://tinyurl.com/2p8k7kbf

(a) Education

IMPRS-IS + ELLIS	Tübingen (DE)	CS	PhD, 2024 - Present
UdeM (Mila)	Montréal (CA)	CS	Research MSc, 2021 - 2024
KIIT	Bhubaneswar (IN)	EEE	B.Tech, 2016 - 2020
Ravenshaw College	Cuttack (IN)	Senior Secondary (+2)	2014-2016
Stewart School	Cuttack (IN)	Secondary	2002-2014
`Extra-curricular`			
Goethe-Institut	Montréal (CA)	German (A1)	2024

(b) Experience Overview

2023 – 2024	Research Associate I, Carnegie Mellon University (CMU) - HSL (RI)
2021 – 2023	Remote Research Scholar, VITA (UT-Austin)
2020 – present	Research Affiliate, Laboratory of Space Research - Hong Kong University
2019 – 2024	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

Worked under the supervision of Prof. Fernando De La Torre on the project of the disparate impact of weight decay on model bias in generative modeling, particularly in image diffusion models, in collaboration with the Apple MLR team.

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, Landskape AI

Landskape AI was a small non-profit deep learning fundamental research group that I founded in September 2019 with the help of Kris Akira Stern (HKU).
At Landskape AI, we worked on deep learning theory, optimization, attention mechanisms, nonlinear dynamics, continual learning, and efficient network design.
Our group included MILA, UIUC, IIT-G, KAIST, HKU, and CMU students and researchers with collaborators from Google Brain, Imperial College, and NUS.
At Landskape AI, I was principally supervised by Assc. Prof. Jaegul Choo (KAIST).

Growth Machine Learning Engineer, Weights & Biases

Worked on the Frameworks and Integration team. As a machine learning engineer, I focused primarily 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*, 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 2022; Sparsity in Neural Networks (SNN) workshop; Continual Lifelong Learning (CLL) Workshop, ACML*, 2022 and *SlowDNN workshop*, 2023.
4. Jaisidh Singh, *Diganta Misra*, Boris Knyazev, Antonio Orvieto, **Hyper-Align: Efficient Modality Alignment via Hypernetworks**, Workshop on Weight Space Learning at ICLR, 2025
5. Alex Gu, Ria Sonecha, Saaketh Vedantam, Bharat Runwal, *Diganta Misra*, **Pruning CodeBERT for Improved Code-to-Text Efficiency**, Sparsity in Neural Networks (SNN) workshop at ICLR, 2023.
6. Divyansh Singhvi, Andrej Erkelens, Raghav Jain, *Diganta Misra*, Naomi Saphra, **Knowing Your Nonlinearities: Shapley Interactions Reveal the Underlying Structure of Data**, NeurIPS ATTRIB workshop, 2023.

7. Nizar Islah, Diganta Misra, Timothy Nest, Matthew Riemer, **Mitigating Mode Collapse in Sparse Mixture of Experts**, New in ML workshop, NeurIPS, 2023.
8. Ethan Kim, *Diganta Misra*, **SPIRIT: Zero Shot Information Retrieval Domain Transfer with Soft Prompts**, Under Review, 2023.
9. Nizar Islah, Justine Gehring, *Diganta Misra*, Massimo Caccia, Irina Rish, **GitChameleon: Unmasking the Version-Switching Capabilities of Code Generation Models**, Data Centric Machine Learning workshop (DMLR), ICLR, 2024.
10. *Diganta Misra*, Niklas Nolte, Sparsha Mishra, Lu Yin, $\mathcal{D}^2$**-Sparse: Navigating the low data learning regime with coupled sparse networks**, Practical Machine Learning for Low-resource settings (PML4LRS) workshop (**Oral presentation**), ICLR, 2024.
11. Hao Chen, Yujin Han, *Diganta Misra*, Xiang Li, Kai Hu, Difan Zou, Masashi Sugiyama, Jindong Wang, Bhiksha Raj, **Slight Corruption in Pre-training Data Makes Better Diffusion Models**, NeurIPS Spotlight, 2024.
12. Minhyuk Seo, Seongwon Cho, Minjae Lee, *Diganta Misra*, Hyeonbeom Choi, Seon Joo Kim, Jonghyun Choi, **Just Say the Name: Online Continual Learning with Category Names Only via Data Generation**, Preprint, 2024.
13. *Diganta Misra*, Ontocord AI team (Multiple authors), **Aurora-M: The First Open Source Multilingual Language Model Red-teamed according to the US Executive Order**, COLING Industry Track, 2024.
14. *Diganta Misra*, Agam Goyal, Bharat Runwal, Pin Yu Chen, **Uncovering the Hidden Cost of Model Compression**, Prompting in Vision workshop (PiV), CVPR, 2024.
15. *Diganta Misra*, Jay Gala, Antonio Orvieto, **On the low-shot transferability of [V]-Mamba**, Prompting in Vision workshop (PiV), CVPR, 2024.
16. *Diganta Misra*, MIT Data Provenance Institute (Multiple authors), **Consent in Crisis: The Rapid Decline of the AI Data Commons**, NeurIPS Datasets and Benchmarks Track, 2024.
17. *Diganta Misra*, MIT Data Provenance Institute (Multiple authors), **Bridging the Data Provenance Gap Across Text, Speech and Video**, ICLR, 2025.
18. *Diganta Misra*, MMTEB team (Multiple authors), **MMTEB: Massive Multilingual Text Embedding Benchmark**, ICLR, 2025.
19. *Diganta Misra*, Mukund Varma T., Multiple authors, **Beyond the Imitation Game: Quantifying and extrapolating the capabilities of language models**, TMLR 2023, TMLR Finalist for Outstanding Certification, ICLR 2025.
20. Timothée Lesort, Oleksiy Ostapenko, *Diganta Misra*, Md Rifat Arefin, Pau Rodriguez, Laurent Charlin, Irina Rish, **Challenging Common Assumptions about Catastrophic Forgetting**, Accepted to *Conference on Lifelong Learning Algorithms (CoLLAs)*, 2023.
21. *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.
22. *Diganta Misra*, Sachi Nandan Mohanty, Mohit Agarwal, Suneet K Gupta, **Convoluted cosmos: classifying galaxy images using deep learning**, ICDMAI, 2019.
23. *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. **Invited Talk** - *LLMs vs. Torch 1.5: Why Your Code Assistant Can't Keep Up* - Microsoft Research India Seminar
2. **Invited Talk** - *Aurora-M: Open Source Multilingual LM Red-teamed According to US EO* - Munich NLP Episode 26
3. **Invited Talk** - *Synthetic Data: The New Frontier* - DLCT at MLC
4. **Invited Talk** - *Unleashing the Power of Generated Data in Lifelong Learning!* - Cohere for AI Computer Vision Community Talk
5. **Invited Talk** - *Just Say the Name: Online Continual Learning via Data Generation* - EfficientML
6. **Fireside Talk** - *Reprogramming under constraints* - Cohere for AI
7. **Invited Talk** - *Multi-Domain Expert Layers* - VITA, UT-Austin
8. **Invited Talk** - *Learning Under Constraints* - TU Eindhoven
9. **Invited Talk** - *Modality agnostic adaptation in deep learning* - IBM Generalization Meeting
10. **Invited Talk** - *APP: Anytime Progressive Pruning* - Continual AI Seminar series
11. **Course Presentation** - *APP: Anytime Progressive Pruning* - Mila Neural Scaling Laws course seminar
12. **Invited Talk** - *From Smooth Activations to Robustness to Catastrophic Forgetting* - Weights & Biases Deep Learning Salon
13. **Research presentation** - *APP: Anytime Progressive Pruning* - MLC Research Jam 8
14. **Podcast** - *Mish: A Self-Regularized Non-Monotonic Activation Function* - Link
    Episode 7 with Miklos Toth on the Machine Learning Cafe podcast.
15. **Invited Talk** - *Mish: A Self Regularized Non-Monotonic Activation Function* - Link
    Presented internally at the Sicara weekly deep learning club.
16. **Contributed Talk** - *Non-Linear Dynamics in Neural Networks*
    Presented at the Deep Learning Colloquium at the University of Athens.
17. **Invited Talk** - *Mish: A Self Regularized Non-Monotonic Activation Function* - Link
    Presented at the Computer Vision Talks.
18. **Invited Corporate Talk** - *Mish: A Self Regularized Non-Monotonic Activation Function*
    Presented virtually at the Bangalore Robert Bosch office.
19. **Podcast** - *Chatting with a data Science team ft DeepWrex Technologies* - Link
    Episode 20 with Ankit Jha on The World Is Ending Podcast.
20. **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

Code Generation Diffusion Models Representation learning Complexity Analysis

(g) Languages

English (Native + Professional) Odia (Native) Hindi (Native) German (A1)

(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. **International Max Planck Research School for Intelligent Systems (IMPRS-IS) doctoral fellowship 2025**
2. **ELLIS (European Laboratory for Learning and Intelligent Systems) PhD fellowship 2024**
3. **Amazon Science Hub PhD Fellowship 2024**
4. **DIRO x Quebec Ministry of Higher Education International Students Scholarship, 2023**
5. **DIRO x Quebec Ministry of Higher Education International Students Scholarship, 2022**
6. **UNIQUE AI Excellence Scholarship, 2022**
7. **MILA Entrepreneur Grant, 2022**
8. **AMII AI Week Fellowship, 2022**
9. **Paperswithcode Top Contributor award, 2022**
10. **6x Model United Nations Best Delegate Award**
11. **Alumni Distinction Award, Stewart School**

(k) Academic Service

1. Serving as a PC for AAAI 2025.
2. Serving as the organizer, AC and PC committee member of the New in ML workshop at NeurIPS 2023.
3. Volunteering at NeurIPS 2023.
4. Served as a reviewer for: ECCV 2024, NeurIPS 2024, 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.
5. Served on the program committee and was a reviewer for CoLLA 2022 and 2023.
6. Serving as the MDEL Modeling lead for the Multi-Domain Expert Layers project initiated by Ontocord.ai.
7. Served as annotator for a project at McGill University to evaluate LLM capabilities for generating quizzes based on scientific contexts.
8. Served as TA for INF-8225: Probabilistic learning course offered at Polytechnique University, Montreal in Winter 2022 under Chris Pal.

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