

BIOGRAPHICAL SKETCH

Diganta Misra

Research Student and Founder
MILA/ Landskape/ W&B/ VITA
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Canada

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(a) Education

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

(b) Experience Overview

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|----------------|---|
| 2021 – present | Visiting Research Scholar, VITA (UT-Austin) |
| 2020 – present | Research Associate, Laboratory of Space Research - Hong Kong University |
| 2020 – 2021 | Machine Learning Engineer, Weights & Biases |
| 2020 – 2021 | Deep Learning Content Developer, Paperspace |
| 2019 – present | Founder and Researcher, Landskape |
| 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

Visiting Research Scholar, VITA, UT-Austin

Working under the guidance of [Dr. Zhangyang Wang](#) on the topics of sparsity in neural networks.

Founder, Landskape

Landskape is a small deep learning fundamental research group I founded in September 2019 along with the help of Kris Akira Stern (HKU).

At Landskape, we work on deep learning theory, optimization, attention mechanisms, non-linear dynamics, continual learning and efficient network design.

Our group includes students and researchers from MILA, UIUC, IIT-G, KAIST, HKU and CMU 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 modelling to understand the different structural variations of PNe as well as constructing an end-to-end pipeline for visually analyzing PNe as well as develop their spectrum profiles.

Mentored by [Prof. Quentin A. Parker](#).

Visit my LSR Profile on the HKU LSR directory [website](#).

Deep Learning Content Developer, Paperspace

Working 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. Currently involved in constructing a blog series on *Attention Mechanisms in Computer Vision* along with reviews of papers from CVPR and ECCV 2020. Authored 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 was a part of 2 research projects during the duration of the internship which include:

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

The projects included documentation and final week panel presentation.

In addition, I was selected to be a part of the [LeadingIndia.AI](#) team where I supervised the hands-on labs for workshops conducted at *Galgotias University* and *Charusat University* along with conducting 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 a part of a team of three, I was advised and mentored by [Dr. Sukant Khurana](#).

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

Intern, Indian Institute of Technology - Kharagpur

Studied basic algorithmic techniques 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 programme. 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, 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, 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. **Podcast** - *Mish: A Self Regularized Non-Monotonic Activation Function* - [Link](#)
Episode 7 with Miklos Toth on the [Machine Learning Cafe](#) podcast.
2. **Invited Talk** - *Mish: A Self Regularized Non-Monotonic Activation Function* - [Link](#)
Presented internally at the [Sicara](#) weekly deep learning club.
3. **Contributed Talk** - *Non-Linear Dynamics in Neural Networks*
Presented at the Deep Learning colloquium at the University of Athens.
4. **Invited Talk** - *Mish: A Self Regularized Non-Monotonic Activation Function* - [Link](#)
Presented at the [Computer Vision Talks](#).
5. **Invited Corporate Talk** - *Mish: A Self Regularized Non-Monotonic Activation Function*
Presented virtually at the Bangalore Robert Bosch office.
6. **Podcast** - *Chatting with a data Science team ft DeepWrex Technologies* - [Link](#)
Episode 20 with Ankit Jha on [The World Is Ending Podcast](#).
7. **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

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|------------------------|--------------------------|--------------------------|
| Non-Linear Dynamics | Mean Field Theory | Convex Optimization |
| Abstract Algebra | Group Theory | Morita Equivalence |
| Mathematical Modelling | Topology | Algebraic Geometry |
| Attention Mechanisms | Efficient Network Design | Self Supervised Learning |
| Continual Learning | Image Reconstruction | Autoencoders |
| Visual Recognition | Deep Learning Theory | Adversarial Robustness |

(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

References, achievements and certifications are available upon request.