

# Divyansha Lachi

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## Education

### University of Pennsylvania, U.S.A

PH.D. IN COMPUTER AND INFORMATION SCIENCE

Aug. 2025 - May. 2028

### Georgia Institute of Technology, Atlanta, U.S.A

PH.D. IN MACHINE LEARNING

Aug. 2023 - May. 2025

### National Institute of Technology Silchar, India

BACHELOR OF TECHNOLOGY IN COMPUTER SCIENCE AND ENGINEERING

Aug. 2017 - June. 2021

## Experience

### University of Pennsylvania

Philadelphia, U.S.A

RESEARCH ASSISTANT

Aug. 2025 - Present

- Advised by **Prof. Eva Dyer**
- Working on developing a scalable training framework for large-scale, multi-graph pre-training with the goal of building a graph foundation model.
- Investigating efficient fine-tuning strategies for adapting large scale neural decoding models

### SAP

Bellevue, U.S.A

SAP IXP INTERN - PHD RESEARCH ASSOCIATE

May. 2025 - Aug 2025

- Reported to **Mark Li**
- Working on developing a scalable foundation model for temporal heterogeneous graph data.

### Georgia Institute of Technology

Atlanta, U.S.A

RESEARCH ASSISTANT

Aug. 2023 - May 2025

- Advised by **Prof. Eva Dyer**
- Working on developing a scalable training framework for large-scale, multi-graph pre-training with the goal of building a graph foundation model.
- Working on developing self-supervised learning methods for analyzing natural animal and human behavior.

### Cold Spring Harbor Lab

Cold Spring Harbor, U.S.A

RESEARCH ASSISTANT

Sept. 2021 - July 2023

- Advised by **Prof. Anthony Zador**
- Worked on developing neuroscience-inspired algorithms in collaboration with **Prof. Blake Richards (MILA)**. We explored how task-relevant information can be compressed into the developmental priors for neural networks via a "stochastic genomic bottleneck", to endow them with innate computing capabilities and facilitating rapid learning.

### Brown University

Rhode Island, U.S.A

RESEARCH INTERN

Dec. 2020 - June 2021

- Advised by **Prof. Thomas Serre** in the Cognitive Linguistic & Psychological Sciences Department.
- Worked on adaptive reinforcement learning using proximal policy optimization for pathfinder task and procgen benchmark.

### Max Planck Institute for Brain Research

Frankfurt, Germany

RESEARCH INTERN

Jun. 2020 - Dec. 2020

- Advised by **Prof. Moritz Helmstaedter** in the Department of Connectomics.
- Worked on Automatic Astrocyte Segmentation on a 3D electron microscopy dataset taken from Layer 4 of a mouse neocortex.

### International Institute of Information Technology Hyderabad

Hyderabad, India

UNDERGRADUATE RESEARCH INTERN

May. 2019 - July. 2019

- Worked in Speech Laboratory of Language Technologies Research Center (LTRC), IIIT H, under **Prof. Suryakanth V Ganshetty** on a parallel voice conversion project.
- Implemented the algorithm to create VSA(Vowel Space Area) and explored its utility in PTSD detection.

## Publication

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**Divyansha Lachi**, Mehdi Azabou, Vinam Arora, Eva Dyer. “GraphFM: A generalist graph transformer that learns transferable representations across diverse domains” *TMLR* (2025)

**Divyansha Lachi**, Mahmoud Mohammadi, Joe Meyer, Vinam Arora, Tom Palczewski, Eva L Dyer. “Integrating Temporal and Structural Context in Graph Transformers for Relational Deep Learning” *Learning on Graphs* (2025)

Vinam Arora, **Divyansha Lachi**, Ian Jarratt Knight, Mehdi Azabou, Blake Aaron Richards, Cole Lincoln Hurwitz, Josh Siegle, Eva L Dyer. “Know Thyself by Knowing Others: Learning Neuron Identity from Population Context” *NeurIPS* (2025)

**Divyansha Lachi\***, Vinam Arora\*, Shivashriganesh P. Mahato, Mehdi Azabou, Zihao Chen, Eva L Dyer. “Exploiting All Laplacian Eigenvectors for Node Classification with Graph Transformers” *Workshop on New Perspectives in Advancing Graph Machine Learning NeurIPS* (2025)

**Divyansha Lachi\***, Joe Meyer\*, Mahmoud Mohammadi, Roshan Reddy Upendra, Eva L Dyer, Minghua Li, Tom Palczewski. “RELATE: A Schema-Agnostic Cross-Attention Encoder for Multimodal Relational Graphs” *Workshop on New Perspectives in Advancing Graph Machine Learning NeurIPS* (2025)

**Divyansha Lachi**, Mahmoud Mohammadi, Joe Meyer, Vinam Arora, Shivashriganesh P. Mahato, Tom Palczewski, Eva L Dyer. “Learning from Multi-Table Relational Data with the Relational Graph Perceiver” *Workshop on AI for Tabular Data EurlPS* (2025)

**Divyansha Lachi**, Mehdi Azabou, Vinam Arora, Eva Dyer. “GraphFM: A Scalable Framework for Multi-Graph Pretraining” *arXiv* (2024)

**Divyansha Lachi\***, Ann Huang\*, Augustine N Mavor-Parker\*, Arna Ghosh, Blake Richards, Anthony Zador. “Stochastic Wiring of Cell Types Enhances Fitness by Generating Phenotypic Variability” *BiorXiv* (2024)

Sergey Shuvaev, **Divyansha Lachi**, Alexei Koulakov, Anthony M. Zador. “Encoding innate ability through a genomic bottleneck” *PNAS* (2024)

Abdullah Faiz Ur Rahman Khilji, Anubhav Sachan, **Divyansha Lachi**, Apoorva Vikram Singh, Apoorva Vikram Singh. “Can we Debunk Disinformation by Leveraging SpeakerCredibility and Perplexity Measures?” *Research Square*; 2023. DOI: 10.21203/rs.3.rs-2764182/v1

Thoudam Doren Singh, **Divyansha**, Apoorva Vikram Singh, Abdullah Faiz Ur Rahman Khilji. “A Hybrid Classification Approach using Topic Modeling and Graph Convolution Networks” *International Conference on Computational Performance Evaluation (ComPE). IEEE, 2020.*

Thoudam Doren Singh, **Divyansha**, Apoorva Vikram Singh, Anubhav Sachan, Abdullah Faiz Ur Rahman Khilji. “Debunking Fake News by Leveraging Speaker Credibility and BERT” *IEEE/WIC/ACM International Joint Conference on Web Intelligence and Intelligent Agent Technology (WI-IAT'20)*

Thoudam Doren Singh, Abdullah Faiz Ur Rahman Khilji, **Divyansha**, Apoorva Vikram Singh, Surmila Thokchom, Sivaji Bandyopadhyay. “Predictive Approaches for the UNIX Command Line: Curating and Exploiting Domain Knowledge in Semantics Deficit Data” *Multimedia Tools and Applications, Springer*

## Abstracts

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Vinam Arora, **Divyansha Lachi**, Ian Jarratt Knight, Mehdi Azabou, Blake Aaron Richards, Cole Lincoln Hurwitz, Josh Siegle, Eva L Dyer. “NuCLR: Zero-Shot Inference of Cell-Types and Brain Regions from Population Activity” *Computational and Systems Neuroscience (COSYNE)* (2026)

**Divyansha Lachi**, Mahmoud Mohammadi, Joe Meyer, Vinam Arora, Tom Palczewski, Eva L Dyer. “RGP: A Cross-Attention based Graph Transformer for Relational Deep Learning” *Stanford Graph Learning Workshop* (2025)

**Divyansha Lachi\***, Joe Meyer\*, Mahmoud Mohammadi, Roshan Reddy Upendra, Alexandre Dorais, Jialin Dong, Viswa Ganapathy, Dinesh Katupputhur, Prasanna Lalingkar, Karan Pareesh, Andrew Pouret, Afreen Shaikh, Jay Shinigari, Eva L

Dyer, Minghua Li, Tom Palczewski. "RELATE: A Schema-Agnostic Cross-Attention Encoder for Multimodal Relational Graphs" *Stanford Graph Learning Workshop (2025)*

**Divyansha Lachi\***, Vinam Arora\*, Mehdi Azabou, Eva Dyer. "Leveraging Perceiver IO and Relative Position Encodings for Enhanced Node Classification", *SIAM Conference on Mathematics of Data Science (MDS24), Mini-symposium: New Frontier of Graph Machine Learning, 2024*

**Divyansha Lachi**, Ann Huang, Augustine N Mavor-Parker, Arna Ghosh, Blake Richards, Anthony Zador. "Stochastic Wiring of Cell Types Enhances Fitness by Generating Phenotypic Variability", *From Neuroscience to Artificially Intelligent Systems (NAISys), 2024 (Oral)*

Alexei Koulakov, **Divyansha Lachi**, Sergey Shuvaev, Anthony M. Zador. "Genomic bottleneck approach to faster learning", *From Neuroscience to Artificially Intelligent Systems (NAISys), 2022 (Oral)*

## Teachings

TA for Transformers in Neuroscience workshop at Cosyne 2024

Project Template lead for *NeuroAI course at Neuromatch 2024*. Developed the template for the project Macrocircuits: Leveraging neural architectural priors and modularity in embodied agents.

## Academic Achievements

2023	<b>Computational Neural-engineering Training Program (CNTP) Scholar</b>	<i>Georgia Tech and Emory</i>
2020	<b>Undergraduate Research Council (UGRC) Grant Winner</b> for the project "AssistiveMRI: A deep learning approach to Medical Image Processing"	<i>NIT Silchar</i>
2019	<b>Finalist in Smart India Hackathon organized by Ministry of Human Resource Development</b>	<i>NIT Warangal</i>
2017	<b>Kishore Vaigyanik Protsahan Yojana (KVPY) Scholarship</b> It is awarded to the top 125 students of the country to pursue research.	<i>Indian Institute of Science, Bengaluru</i>

## Talks

2025	Graphfm: A scalable framework for multi-graph pretraining	<i>SAP</i>
2025	Stochastic Wiring of Cell Types Enhances Fitness by Generating Phenotypic Variability	<i>École Normale Supérieure</i>

## Skills

<b>Programming Languages</b>	Python**, C/C++, Java, JavaScript, Matlab	** Expert, * Advanced
<b>ML Frameworks</b>	PyTorch**, PyG**, RayTune*, TensorFlow, scikit-learn*, OpenCV, Keras	
<b>Misc</b>	Flask, MongoDB, PHP, Docker	