RAM SAMARTH B B

[Outlook (IISc workmail)](#) ◇ [Gmail](#) ◇ [LinkedIn](#) ◇ [Github](#) ◇ [Google Scholar](#)

OBJECTIVE

I am an undergraduate researcher at the **Indian Institute of Science** (IISc) and a **visiting** student **researcher** at the Graph and Geometric Learning Lab, **Yale University** under Professor **Rex Ying**. I graduated in April 2025 with a **Bachelor of Technology** in **Computer Science and Engineering**. My specialization is in **Graph Neural Networks**, where I focus on both theoretical research and practical applications using real-world graph data. Currently, I am extensively exploring **self-supervised representation learning** and **Parameter Efficient Fine-Tuning** methods in LLMs.

EDUCATION

Bachelor of Technology , Computer Science and Engineering, IIIT KOTTAYAM   Dec 2021 - April 2025

CGPA   **8.78/10.00**

EXPERIENCE

Visiting Student Researcher   February 2025 - Present
[Graph and Geometric Learning Lab](#), **Yale University**

- Working towards the development of geometric foundation models under supervision of **Prof Rex Ying** and Menglin Yang.

Kotak AI Research Intern   May 2024 - Present
[VISTA](#) **Lab, Indian Institute of Science**

- Funded by **Kotak AI ML Center** at **IISc** for 1 year to conduct research on **Graph Neural Networks** (GNNs) under the supervision of Prof. **Punit Rathore** (VISTA Lab, IISc).
- Focused on various aspects of GNNs, including **Spectral** Graph Theory and GNNs, **Graph Transformers**, Graph Diffusion, Unsupervised GNNs, Self-Supervised GNNs, Anomaly Detection and **Large Scale** GNNs.
- Presented "***BEST-GD: Beltrami Inspired Spectral Graph Diffusion***" at CyPhyss 2024, **IISc**. Ongoing projects includes a **public-sector** and a government-funded **graph research**.

Research Intern   October 2023-January 2024
[DISCOVER](#) **Lab, National Institute of Technology Suratkal , Karnataka**

- Conducted in-depth research on **Federated Learning** under the supervision of Prof. Annappa B and Sachin DN at NITK, focusing on **data heterogeneity** and **Non-IID** challenges. Explored Personalised Federated Learning using Hypernetworks (**ICML** 2021) and submitted the algorithm to the [Flower](#) framework as part of the **Summer of Reproducibility**.
- Simultaneously started exploring research on **Graph Neural Networks**, addressing privacy-preserving aspects and challenges centralized training, culminating in my first first-author publication titled ***"FedLSF: Federated Local Graph Learning via Specformers,"*** accepted for **Oral** Presentation at the 20th IEEE **International Conference on Distributed Computing in Smart Systems and the Internet of Things**, a core **B** conference.

Technical Developer Intern   December 2022 to November 2023
RRR Gig Jobs

- **Technical Developer** and **DevOps engineer**, where I built **admin** and **backend** platforms for the company's web.

PUBLICATIONS AND PROJECTS

Topological Self-supervised Learning. (Under submission NeurIPS 2025).

Geometric learning to enhance foundational models. (Under submission NeurIPS 2025).

SSGNN: Simple Yet Effective Spectral Graph Neural Network: **Ram Samarth B B**, Rishabh Sabharwal, Sundeep P Chepuri, Punit Rathore. (Submitted to ICLR 2025).

STEAM: Squeeze and Transform Enhanced Attention Module: Rishabh Sabharwal*, **Ram Samarth B B***, Parikshit S, Punit Rathore. ((AAAI 2025 phase 1 cleared), * - first authors).

FedLSF: Federated Local Graph Learning via Specformers: **Ram Samarth B B**, Annappa B, Sachin DN (20th IEEE DCOSS, Oral)

NPCI - IISc Anti Money Laundering Project on real time large scale **UPI** transactional data using **Temporal GNNs**: Working on developing large-scale Temporal GNNs for **anti-money laundering** on real-time UPI data, handling graphs worth **millions** of nodes. (Working from IISc's team).

Real Time Bangalore Traffic prediction using Spatio-Temporal GNNs: Explored, benchmarked, and developed **Spatio-Temporal GNNs** along with a team for real-time traffic flow prediction using highly **dynamic Bangalore traffic** data. This PoC secured funding from MoE for establishing the **AI Center** of **Sustainable Cities** at IISc.

Privacy-Preserved Stress Detection from Wearables using Federated Learning: Lekha CW, Ragesh GK, **Ram Samarth B B**, Kishan G.

Developed the Level 1 **baseline** in the **Flower Federated Learning** framework at the Flower's **Summer of Reproducibility**, successfully replicating **ICML** 2021's **pFedHN** paper .Here is the code

Kubernetes Stack Client - Developed a versatile **full-stack Kubernetes client** in **GoLang**, empowering developers with flexibility and enhancing **Helm** package management while enabling efficient **monitoring** with **Prometheus** and **Grafana** integration.code

PETORA- PETORA is an **Android Application** developed using **Java**, XML and **Firebase**. This app was developed by a team of four of us as a submission to solve one of the **UN goals** at the **Google Solution Challenge 2022**.This app is a one stop solution for dealing with the well-being of the pets.I contributed to the firebase backend(**authentication , storage**) along with the **navigation bars.** This is the app and here is my contribution

SKILLS

Coding Languages	Python, GoLang, Julia, C
Deep Learning Frameworks	PyTorch, PyTorch Geometric
Big Data	Hadoop, Apache-Spark, PySpark
Cloud and DevOps	Google Cloud Platform, YAML, Docker, Kubernetes, Git, Wandb

CERTIFICATION

Google Cloud Certified Cloud Digital Leader   Certification Link

TALKS

Fortunate to have been selected to attend the **Google Deepmind Research Symposium 2025** held at Google, Bangalore, India.

Co-delivered an **in-person lecture** and led a **hands-on** session on **Graph Neural Networks**, from basics to **advanced** topics, as part of the **NPCI-IISc AML** project **alongside Professors** Punit Rathore, Sundeep S Chepuri (Content will be made public soon).

Led GDSC (as a **Technical Lead**) IIIT Kottayam's **Google Cloud** Career Practitioners Program 2022 and **Web Development Marathon**, conducting hands-on sessions on **cloud engineering**, TypeScript, and Angular, while mentoring students in the area of cloud computing.