

Sumaiya Dabeer

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About

Researcher in graph ML research, driving innovation for real-world applications.

Education

- 2020–Present **PhD (Computer Engineering)**, Department of Computer Science and Engineering, Indian Institute of Technology Delhi, Delhi.
Courses taken: Advanced Graph Theory, Parallel Programming, Numerical Analysis and Scientific Computing, Advanced Data-structures
- 2018–2020 **M.Tech (Software Engineering)**, Z. H. College of Engineering and Technology AMU, Aligarh, CGPA 10/10.
- 2014–2018 **B.Tech (Computer Engineering)**, Z. H. College of Engineering and Technology AMU, Aligarh, CGPA 9.4/10.
- 2013 **Higher Secondary School**, SSSG AMU, Aligarh, 79.75%.
- 2013 **High School**, Jyoti Vidya Mandir, Gonda, 70.34%.

Research Interest

Graph Laplacian, Graph ML, Graph Message Passing, Algorithms, Scientific Computing, Parallel Programming,

Experience

- Sep 20–Present **Teaching Assistant**, CSE, IIT Delhi, New Delhi.
- COL100: Introduction to Computers and Programming (Head TA)
 - CON101: Introduction to Computer Science (Head TA)
 - COL106: Data Structures and Algorithms (Head TA)
 - COL380: Introduction to Distributed and Parallel Programming
 - COL726: Numerical Analysis and Scientific Computing
 - COL202: Discrete Mathematical Structures
- July 19–July 20 **QA and Automation Engineer**, String Pvt. Ltd., Aligarh, Working on Selenium, PyTest, Postman, Dredd, Django, REST Framework .

Projects

- Message Passing in Graph using GPUs**, PhD work, Implemented using Pytorch-PyG, Aim is to develop a PyG-like architecture with better performance in message-passing.
- Distributed Laplacian solvers of graph using GPUs**, PhD work, Implemented using C++ and CUDA, Accepted in **PDCO-IPDPS 2024, CA, USA.**
Graph Based Word Embeddings on NLP Tasks, M.Tech Dissertation, Implemented using Pytorch, Completed.

- 3: **Brain Tumor Overall Survival Prediction Using MRI**, *M.Tech project*, Implemented using Deep Learning Toolbox - MATLAB, *Completed and under Publication*.
- 4: **Breast Cancer Detection Using Deep Learning**, *B.Tech Major project*, Implemented by CNN using Keras and Tensrflow, .
Published in Informatics in Medicine Unlocked, Volume 16, Elsevier
- 5: **Smart City**, *M.Tech lab joint project*, Implemented using RaspberryPi-3, *Completed*.
- 6: **User Authentication System**, Implemented using Django framework, *Published*.
- 7: **Emotion Detection**, *Lab project*, Android App using Microsoft Face API, *Completed*.

Academic Papers and Workshops

- Academic Paper "GPU-LSolve: An Efficient GPU-based Laplacian Solver for Million-scale Graphs" In **PDCO, IPDPS24**, accepted
- Academic Paper "A Novel Hybrid User Authentication Scheme Using Cognitive Ambiguous Illusion Images" In **Data Communication and Networks**, pp. 107-118. Springer, Singapore, 2020.
- Academic Paper "Cancer diagnosis in histopathological image: CNN based approach" In **Informatics in Medicine Unlocked** Volume 16 (2019): 100231. **185+ citation**
- Academic Paper "A New Method to Optimize Initial Cluster Number and Then Apply K-Means Algorithm to Perform Image Segmentation" in "JOMTRA" ISSN:2349-9028 (Online) Volume 5, Issue 2.
- Short Course **NLP In Psycholinguistics And Big Data** at **IIT Kanpur** in December 2018
- Conferences **CODS-COMAD-22** (attended), **GUCON-19** (presented the paper)
- Workshops Python For Engineers in 2019, Social Media and Data Analytics in 2019, Data Science using Python and Advance Excel in 2019, Android in 2016, Core Java in 2015

Technical skills

- Advance: CUDA, Python, PyTorch, PyTorch-PyG, Tensorflow, Numpy, Pandas, NLP, MATLAB, XAMPP, MySQL, MongoDB, Selenium, PyTest, UnitTest, Postman, Dredd
- Intermediate: Java, Django, REST Framework, ModelSim, Oracle, PHP, Android Studio, JSP

Awards and achievements

- o **Travel award** by IPDPS24 committee for attending the conference (\$1000)
- o Awarded **TBO Group Fellowship** for Women-2021 (INR 2,50,000)
- o **Best TA award** from CSE IIT Delhi for 'Data Structures and Algorithms' (Awarded Twice)
- o **Finalist** from TechGium-2020, National level competition by Larsen & Toubro
- o Served as Resource Person in workshop "Simulation of Networks (SON-2019)"
- o **Team leader** in the joint project of Smart City using RaspberryPi3
- o Qualified **NET** organized by UGC
- o Qualified **GATE** with 96 and 98 percentile in 2018 and 2019

Languages

- o Mothertongue: Hindi
- o Fluent: English, Urdu

References

- o **Prof. Amitabha Bagchi**
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- o **Prof. Rahul Narain**
(*PhD Co-supervisor*)
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