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Trishita Mukherjee

Research Objective

I intend to pursue a career towards building a safe and responsible AI for the future. Leveraging my expertise in machine learning and graph theory, I seek to develop novel algorithms and techniques for effectively removing sensitive data traces from trained models without compromising performance. My research interests are primarily aligned in privacy-preserving Graph Machine Learning and it's applications.

Education

2023 – 2028 **Indian Institute of Technology Kharagpur**,
Center of Excellence in Artificial Intelligence, Ph.D.(Pursuing).
Supervisor - Prof. Plaban K. Bhowmick and Joint Supervisor - Prof. Jiaul H. Paik
Area of Research : *Dynamics of Graph Unlearning: Methods and Applications*

2020 – 2022 **Jawaharlal Nehru University**,
Computer Science and Technology, Master of Technology.
GPA – 8.64/9 (1^{st} rank)

2018 – 2020 **Calcutta University**,
Computer Science , Master of Science with distinction.
GPA – 9.1/10 (3^{rd} rank)

2015 – 2018 **St. Xavier's College, Kolkata** ,
Computer Science , Bachelor of Science with distinction.
CGPA – 8.52/10

2015 **Auxilium Convent School, Dum Dum**,
Class 12, (Science).
GPA – 96.25% (Best of four subjects)

2013 **Auxilium Convent School, Dum Dum**,
Class 10.
GPA – 92% (Best of five subjects)

Teaching Experience

Spring 2024 Teaching Assistant in Machine Learning Foundations and Applications Course (AI42001) (Continuing)

Autumn 2023 Teaching Assistant in Machine Learning Foundations and Applications Course (AI42001)

Research Publications

[1] Sonali Sen, **Trishita Mukherjee**, Sunanda Pal, Sumana Ghosh, Fraud Pattern Recognition In Banking Sector Using Graph Database, International Journal of Computer Sciences and Engineering, Vol.6, Issue.6, pp.1394-1398, 2018.

[2] **Trishita Mukherjee** and Rajeev Kumar, Localized Community-Based Node Anomalies in Complex Networks, In Soft Computing for Problem Solving: Proceedings of the SocProS 2022 (pp. 679-689), Singapore: Springer Nature Singapore, 2023.

Academic Projects

2022 **Anomaly Detection in Complex Networks (M.Tech Thesis)**, *Supervisor – Prof. Rajeev Kumar, Jawaharlal Nehru University*.

- Detection of anomalies at node-level and community-level in complex networks by employing community detection methods, graph metrics, community representation learning with feature engineering and unsupervised outlier detection algorithms (DBSCAN, CBLOF and Spectral Clustering).

2019 – 2020 **P-Trackchain: Decentralized Application on Automotive Supply Chain**, *Supervisor – Prof. Sanjit Setua, Calcutta University*.

- Implemented a decentralized blockchain technology application where end to end traceability of parts was introduced in the automobile supply chain and detection of counterfeit of parts.
- This application is built in ethereum platform with the supporting frameworks of truffle, ganache and metamask.

May 2019 – July 2019 **Diagnostic Lab Website Development**, *Advisor – Prof. Nabendu Chaki, Calcutta University*.

- Implementation of diagnostic lab working environment through web development using HTML5,CSS,Bootstrap,JavaScript and PHP using Xampp as the localhost server.

2017 – 2018 **Fraud Pattern Recognition in Banking Sector using Graph Database**, *Supervisor – Prof. Sonali Sen, St. Xavier's College, Kolkata*.

- In graph database possible frauds in banking sector like ring fraud(bust out fraud/first party fraud) and credit card fraud is detected, by designing and implementing certain queries.
- This project was done during BSc. final year.

Selected Coursework

- Machine Learning, Deep Learning Foundations and Applications, Graph Machine Learning, Advanced Graph Theory, High Performance Scientific Computing

Scholastic Achievements & Certifications

Combined 2020 & 2021 session — UGC-NET exam (held in India) Qualified for Lectureship (top 0.01%).

2022 — 23^{rd} WBSET (held in West Bengal) Qualified for Lectureship (top 0.01%).

2021 – 2022 — UGC NON-NET Fellowship from Jawaharlal Nehru University(JNU).

2020 — 1^{st} Rank Holder in M.tech in Computer Science and Technology from Jawaharlal Nehru University(JNU).

2020 3^{rd} Rank Holder (out of 100 students) in MSc. Computer Science from Calcutta University.

2018 Certification in CCNA from ISOEH(Indian School of Ethical Hacking) with grade A+.

2018 Certification in Ethical Hacking from ISOEH(Indian School of Ethical Hacking) with grade A+.

2017 – 2018 Prabuddha Bhattacharya Memorial Award securing highest marks in project work in Computer Science (SEM VI) for B.Sc in Computer Science from St. Xavier's College, Kolkata.

2015 100 percent marks in Mathematics in ISC (Class 12^{th}).

2021 Attended 25^{th} PAKDD conference hosted jointly by JNU & IIIT Hyderabad held in 11-14 May, 2021.

Skills

Languages	C, C++, Java, Python, R, Matlab, Solidity, Perl
Frameworks	Ethereum, Truffle, Ganache, Metamask, Neo4J, Networkx, Keras, Pytorch Geometric, PyOD, NLTK, DGL, Tensorflow, Eclipse, Xampp
WebD	HTML5, CSS, JavaScript, Bootstrap, PHP, Web3.js
Utilities	Anaconda, Sublime Text, LATEX, Jupyter Notebook, Eclipse
Communication	English(SRW), Hindi(SRW), Bengali(SRW)

Research Interests

- Trustworthy Graph Machine Learning
- Deep Learning applications
- Graph Mining
- Graph Anomaly detection
- Network Science

Co-Curricular

2017 Event Coordinator in Tech-Talk event for the department of Computer science in St. Xavier's College, Kolkata.

2018 Event Head in Verb-O-War(Debate) event for the department of Computer science in St. Xavier's College, Kolkata.

2015 – 2018 Participated in Community service for underprivileged education in NSS (National Service Scheme) in St. Xavier's College, Kolkata.

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