

MS(R)/PhD at the LCS2 Lab
Dept. of Electrical Engg. (Computer Technology Group)
Indian Institute of Technology Delhi, India

The Laboratory for Computational Social Systems (LCS2) is inviting bright candidates to join MS by Research (MSR) / PhD positions in the Dept. of Electrical Engineering (Computer Technology group) at IIT Delhi, India.

Website: The official website of the group is lcs2.in (Twitter handle: [@lcs2lab](https://twitter.com/lcs2lab), LinkedIn: [@lcs2lab](https://www.linkedin.com/company/lcs2lab)) or tanmoychak.com. Any queries can be emailed to Prof. Tanmoy Chakraborty (chak.tanmoy.iit@gmail.com).

Research Interests: Currently, the group broadly focuses on Natural Language Processing (NLP), Graph Neural Networks and Social Computing (*aka* Computational Social Science). In particular, the group's current interests include:

- (i) LLMs (reasoning, grounding, distillation, prompting, hallucinations, etc.)
- (ii) Robust, scalable and task-specific large language models
- (iii) Proactive and reactive techniques for combating online toxicity (hate speech, misinformation, collusion, etc.)
- (iv) Computational techniques for mental health
- (v) Graph representation learning for dynamic and temporal graphs (with geometric deep learning)

Industry Collaborations: The group collaborates with (is funded by) leading industries, including Facebook, LinkedIn, Samsung, Logically, DRDO, Adobe, Accenture, and Crimson.

Applications: The group accepts applications throughout the year. However, the current round of applications through the IIT Delhi application portal is open: <https://home.iitd.ac.in/pg-admissions.php> (The deadline is Oct 27, 2023 at 4 PM ISR).

The eligibility criteria are mentioned in the Institute brochure available at the above link. Once the dept. receives the applications, the dept-level shortlisting criteria will be applied, based on which the candidates will be called for the written test and/or interview. You may check the department's criteria used in the last round at <https://ee.iitd.ac.in/admission> (check the criteria defined by the Computer Technology group).

Notes during submitting the applications through the institute portal:

If you want to apply for the research positions at LCS2, please keep the following points in mind while filling out the form:

- Under the "Program Details" tab, please select "Full-time", Department: "Electrical Engineering", Discipline: "PhD in Electrical Engineering", Proposed Area of Research: Natural Language Processing. If you put the above information, then only your application will come to Prof. Tanmoy Chakraborty for evaluation.
- Under the "Documents Upload Details" section, you have to write "Statement of Purpose and Abstract of Thesis". You can select any topic of your choice to write these documents. See the lab's broad research interests. You can choose any of these topics to write your SoP and Abstract. If your documents come to us, we will only check your writing skills.
- The shortlisted candidates may need to appear for the written test, followed by an interview. If you apply to the Computer Technology group, you are expected to know the fundamentals of CS for the written test (note, written test may remain optional; it depends on the criteria set in this round).

If your application is shortlisted, you will be sent a Google form, which will seek information about (i) three preferred advisors, (ii) a preferred research group (where you have to put Computer Technology (CTech)), (iii) three preferred areas of research (you can add NLP, Deep Learning, Social Network Analysis).

FAQs

1. [Why should I join Electrical Engg. at IIT Delhi to work on AI/ML/NLP-related research?](#)

The EE dept at IIT Delhi is the top-most dept in India as per the QS ranking. The dept. is known for its interdisciplinary research. The dept. is engaged in a broad/diverse range of research, including power, communication, control, circuits, chips, neuromorphic computing, and AI/ML. The Computer Technology (CTech) group at the EE dept is one of the oldest research groups in India that focuses on various research in computer science, ranging from computer vision, NLP, graph mining, neuroscience, bioinformatics, computer networks, and theoretical ML/AI. In general, it is hard to differentiate between CS and EE research areas. Therefore, in the USA and other European countries, we often see departments like the Department of Electrical Engineering and Computer Science (EECS) at MIT, Carnegie Mellon's Department of Electrical and Computer Engineering, Johns Hopkins Department of Electrical and Computer Engineering, etc.

2. [If I want to join Electrical Engg. at IIT Delhi to work on AI/ML/NLP-related research, do I need to have any prior degree in Electrical Engg.?](#)

No. If you want to pursue your doctoral research in AI/ML, you should have a UG/PG degree in CS/EE/ECE/IT/Maths or related disciplines. In fact, we are ready to recruit students who have a strong background in basic sciences like Physics. The requirement is that you should know algorithms and data structure, probability and linear algebra and Python programming well. You should also know Machine Learning and Deep Learning. No degree or prior courses in EE are required.

3. [If I join Electrical Engg. at IIT Delhi to work on AI/ML/NLP-related research, do I need to take traditional electrical courses?](#)

No. You will have to take courses which are related to your research, e.g., Machine Learning, Deep Learning, NLP, Advanced Machine Learning, Computer Vision, Multimedia Computing, etc. Your advisor will suggest the courses.

4. [If I complete my PhD in Electrical Engg. at IIT Delhi, would I be eligible to apply for an academic position other than the EE dept \(such as CSE, Maths\)?](#)

Yes. It depends on your research and the courses that you are able to teach. You can apply to any dept. (such as CSE, EE, ECE and Math) as long as your research area is aligned to the dept's needs and you will be able to teach some of the basic courses of the dept.

5. [Why should I choose LCS2?](#)

LCS2 provides a vibrant research ecosystem. The group is ambitious in publishing in top-most venues and aims to have deployable solutions. The group is equipped with significantly large [computing facilities](#) (important for today's ML research!). Apart from these faculties, institute-wide large computing facilities (HPC) are also available. The group enables regular interactions with industry collaborators, opportunities for internship and short-term visits to the industry, and opportunities to work on industry-relevant problems with deployable solutions (on real-world data,

if available). The group has a dynamic research culture – a mix of fundamental and applied sciences. The lab members received the prestigious PM PhD fellowship, TCS PhD fellowship, etc. Most importantly, the group members also party! More details may be found at lcs2.in.