

# EESHAAN JAIN

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## EDUCATION

### Indian Institute of Technology Bombay

Mumbai, India

B.Tech in Electrical Engineering and M.Tech in Artificial Intelligence (Cumulative GPA: **9.68/10.0**)

- **Key Coursework:** Graph Learning, Intelligent Agents, Optimization, Probability, Graphical Models
- **Department Rank 2; Institute Academic Prize** [2021, 2022]

Jul '19 – Jun '24 (Expected)

### École Polytechnique Fédérale de Lausanne (EPFL)

Lausanne, Switzerland

Semester Exchange in Computer Science (Cumulative GPA: **5.5/6**)

- **Key Coursework:** Information Theory, Speech Processing, Functional Programming, NLP

Aug '22 – Feb '23

## PUBLICATIONS

1. **Learning to Select a Subset of Training Examples to Generalize Efficient Model Training**, accepted at [NeurIPS 2023](#)

## PROFESSIONAL EXPERIENCE

### Artificial Intelligence Engineer

May '22 - Jul '22

AWL, Inc. Japan: Core Artificial Intelligence Team

Sapporo, Japan

- Surveyed optimization frameworks based around **model compression, quantized training** and **inference speed-up**
- Implemented **hardware-optimized** operations and routines on CPUs using **Apache TVM** for **8×** throughput improvement

## RESEARCH EXPERIENCE

### Generalization Bounds and Explainability of Temporal Graph Networks

May '23 - Ongoing

Research Assistant, Guide: [Prof. Vikas Garg](#), [Amauri H. Souza](#)

Aalto University

- Derived stronger **Rademacher** generalizability bounds for node classification using **Graph Neural Networks (GNNs)**
- Connected the notions of **robustness, generalizability** and **faithfulness** in the context of dynamic graphs

### Learning to Select a Subset of Training Examples to Generalize Efficient Model Training

May '22 – May '23

Bachelor's Thesis (with Google Research), Guide: [Prof. Abir De \(IIT Bombay\)](#), [Prof. Rishabh Iyer \(UT Dallas\)](#)

IIT Bombay

- Introduced a **GNN-based encoder, attention-based** model approximator and novel subset selector for unseen networks
- Demonstrated that our approach constantly **outperformed** other non-adaptive and adaptive subset selection approaches on various datasets and subset sizes in terms of **accuracy, subset selection time** and **memory consumption** by over 30%

## TECHNICAL SKILLS

**Programming Languages:** Python, Scala, C++

**Machine Learning:** PyTorch, PyTorch-Geometric, NLTK, Scikit-Learn, OpenCV, TVM, TensorRT

**Python Libraries:** NumPy, Pandas, Matplotlib, Seaborn, SciPy, Qiskit, SymPy, PyQt5, JAX, NetworkX, OpenCV, Hydra

## POSITIONS OF RESPONSIBILITY

### Student Mentor | Student Mentorship Programme, IIT Bombay

Selected based on overall performance in a rigorous process comprising of interviews, SOP and peer reviews

- **Institute Student Mentor:** Guiding **12 freshmen** focusing on their academic, holistic and overall development
- **Department Academic Mentor:** Mentoring a group of **6 sophomores** with their academics and research

### Teaching Assistantships | IIT Bombay

Facilitating smooth course organization, grading papers, mentoring students, conducting tutorials and help sessions

- Learning with Graphs, Optimization for Machine Learning, Partial & Ordinary Differential Equations, Quantum Chemistry

## ACHIEVEMENTS, AWARDS AND EXTRA-CURRICULARS

- Co-founded **AI SRG** – the first student reading group on Artificial Intelligence at IIT Bombay (2022)
- Conducted a summer course for **Practical Python Programming** with **1000+ enrollments** (2021)
- Awarded the **AP Grade** for **outstanding performance** in Partial Differential Equations and Quantum Chemistry (2021)
- Secured **Rank 120** in JEE Main among 1.3 million and **Rank 355** in JEE Advanced among 0.25 million candidates (2019)
- Qualified the **LIMIT** exam hosted by ISI Bangalore, and selected for their camp on abstract mathematics (2019)
- Ranked **top 300 across India** and appeared in the Indian National Chemistry and Astronomy Olympiads (2019)
- Completed all six levels of **Speed Arithmetic** under IPA, and **stood 2nd** in their nation-wide competition (2016)