

MANVI GUPTA

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EDUCATION

RWTH Aachen University, Germany <i>RWTH Exchange Worldwide Scholarship Recipient (DAAD)</i>	October 2019 - February 2020 Overall Grade: 9.25/10
Indian Institute of Technology(IIT) Mandi <i>Bachelor of Technology (B.Tech.)</i> <i>Computer Science & Engineering</i>	August 2017 - July 2021 CGPA: 9.24/10 <i>(Rani Gonsalves Memorial Medal Awardee)</i>

WORK EXPERIENCE

Computer Scientist I - Adobe Systems India *February 2025 - Present*
Generative AI & Sensei (Firefly team)
Working on container snapshotting for training jobs ensuring a seamless user experience and optimised resource utilisation.

Software Development Engineer II - Adobe Systems India *February 2023 - January 2025*
Generative AI & Sensei (Firefly team)
Designed an in-house scheduler on top of the Kubernetes native scheduler to handle the bulk requests (jobs) fairly with minimal resource wastage.

Software Development Engineer - Adobe Systems India *July 2021 - January 2023*
Cloud Technology Unit (Sensei & Search Team)
- Implemented and managed *DevBox*, the foundational component of Adobes in-house ML Training Platform, enabling seamless research and development.
- Developed a cost analytics service to track and optimize Adobe-wide ML resource expenditures.

Product Intern - Adobe Systems India *May 2020 - July 2020*
Cloud Technology Unit (Sensei & Search Team)
Built a Machine Learning pipeline on a distributed Kubernetes Platform & developed a POC for MLflow & Kubeflow capabilities.

Received *Pre-Placement Offer* for a full-time role as Member of Technical Staff based on excellent performance during the internship.

PROJECTS

MUTUAL INFORMATION ESTIMATION IN DNNs *September 2020 - Present*
Major Technical Project *Dr. Samar Agnihotri (IIT Mandi)*

- Implemented the Ensemble Dependency Graph Estimator (EDGE) for Scalable Mutual Information Estimation and its variation. Compared the results with that obtained from the HSIC criterion.
- Long term goal is to compare different algorithms for the closest estimate of mutual information across hidden layers in a Deep Neural Network and prove/disprove the Information Bottleneck Principle.

OPTIMIZING FUNCTIONAL LANGUAGE COMPILERS *May 2021 - June 2021*
Program Analysis *Dr. Manas Thakur (IIT Mandi)*

- Performed a detailed survey on the optimization techniques used by functional language compilers.
- Compared and analysed them for their extent of optimization and the associated overheads.
- Suggested potential improvements in the existing methods, & ways to come up with new optimizations.

CALL TREE REVERSAL

Using Mixed Integer Programming

October 2019 - February 2020

Prof. Dr. Uwe Naumann (RWTH Aachen)

- Learnt about checkpointing Function Call Trees using Algorithmic Differentiation that could help to increase program efficiency. Used GUROBI optimizer

TECHNICAL STRENGTHS

Computer Languages	C, C++, Python, Java, GoLang, Scheme(Lisp), Haskell
Web Technologies	Spring Boot, HTML, CSS, Flask, PHP
Machine Learning	Keras, Tensorflow, PyTorch, SciKit-Learn, MLflow
Familiar Technologies	Kubernetes, Docker, MySQL, OpenCV, MPI, Git

RELEVANT COURSEWORK

Mathematical Foundation of Computer Science	Machine Learning
Information and Database Systems	Paradigms of Programming
Data Structures and Algorithms	Satisfiability Checking
Computer Organization	High Performance Computing
Operating Systems & Computer Networks	Compiler Design
Performance Analysis of Computer Networks	Program Analysis

POSITION OF RESPONSIBILITY

Founder Coordinator, ACM-W Chapter IIT Mandi

Chairperson, August 2019 - August 2020

- Officially set up the new community. Guided girl students about opportunities in the field of computing and connect the students to women leaders of the world.

Undergraduate Teaching Assistant

- *Paradigms of Programming (Feb. 2021 - June 2021)*
- *Data Science III (Sep. 2020 - Dec. 2020)*
- *Information & Database Systems (Feb. 2020 - Sep. 2020)*

SEMINARS & WORKSHOPS ATTENDED

ACM India Summer School

Cyber Security and Data Analytics

IIT Delhi

July 2019

- Learnt about security concerns on Social Media, and Cryptographic techniques used in SSL.
- Also got introduced to Natural Language Processing, as a method of encryption-decryption.

ACADEMIC & EXTRA-CURRICULAR ACHIEVEMENTS

- *Adobe Spot Award* winner for outstanding performance in December 2022.
- Overall rank 3 in B.Tech class of 2017-2021, among all the departments.
- Winner of *Hacking the Google Maps*, online competition by Heuristics IIT Mandi, in May 2020.
- Runner up in Astronomy Club Hackweek-2018 held at IIT Mandi.
- Winner of Intra College Diwali Photography Competition 2017.
- First, among the 7 teams from the college in Flipkart GRiD Machine Learning challenge.
- Represented IIT Mandi at Inter IIT Cultural Meet 2017, at IIT Kanpur.
- Ranked in All-India Top 1% (amongst 11,86,000 candidates) in JEE Mains 2017 and Top 2.8% (amongst 1,59,540 candidates) in IIT-JEE Advanced 2017