

# Prakhar Gupta

Indian Institute of Technology, Goa

Fourth Year **Undergraduate, Computer Science and Engineering**

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## Education

<b>BTech, Computer Science and Engineering</b> , Indian Institute of Technology Goa	CGPA : <b>7.55/10</b>	2021 – Present
<b>Class 12, CBSE</b> , St.Xavier's High School, Ailwal	Aggregate: <b>93.2 %</b>	2019 – 2021
<b>Class 10, ICSE</b> , Jyoti Niketan School, Atlas Tank	Aggregate: <b>95.4 %</b>	2017 – 2019

## Experience

**Technology Analyst, ProcDNA** (Jan 25 – Present)

- Worked on Databricks, Spark, and data warehousing, supporting the backend data exploration.
- Automated QC processes in **PostgreSQL** and validating data integrity through covariance checks.
- Contributed to the successful delivery of 10+ dashboards solution for a pharmaceutical client, focusing on data management.

**Research Intern** (Jul 24 – Dec 24)

*Under Guidance of Dr. Shitala Prasad | IIT Goa | Published in IIT-Roorkee Socprocs 2025*

- Contributed 2 coral species **image datasets** and trained deep learning models, to public domain
- Supported environmentalist by open-sourcing the project to aid coral conservation and biodiversity monitoring.
- Multispecies Classification: GoogleViT hit **98.36%** on **32 species**; ResNet-50 and CocaViT followed with 91.03% and 90%.

## Projects

**Novel AutoComplete** [[Github](#)] (May 24 – Jun 24)

- Implemented a **LSTM** architecture resulting in a 30% improvement compared to RNN.
- Used TensorFlow and implemented Beam Search for decoding text sequence.
- Extended the model to use **Transformer** architecture reducing training time by **80%**.

**GPT-2 From Scratch by Andrej Karpathy** [[Github](#)] (Oct 24 – Nov 24)

- Built a GPT-2 style language model from scratch using Python and PyTorch.
- Implemented core transformer components including tokenization, self-attention, and training loops.
- Trained the model on NVIDIA DGX systems, achieving higher accuracy and significantly faster convergence.

**Thinking, Fast and Slow Agent** [[Github](#)] (Jan 24 – Apr 24)

- Built an iterative essay writing agent using **LangGraph** to generate and improve essays through a self-reflection loop.
- Implemented **Reflection** prompting to enable the system to critique and refine its own outputs.
- Designed dynamic graph-based state transitions to manage multi-step reasoning and feedback in real-time

## Skills

Programming Skills:	C++, C#, Python, Bash, SQL, CUDA C.
Software Skills:	Git, VS, VS Code, IntelliJ IDEA, Databricks, Docker, AWS, Tableau, Anaconda.
Frameworks/Libraries and OS:	Ubuntu, Fedora, Windows, PyTorch, TensorFlow, Sci-kit-learn, LangChain, LangGraph, PySpark, SparkSQL.
Relevant Coursework	Machine Learning, Artificial Intelligence, Optimization, Computer Vision, Deep Learning, Time Series Analysis.

## Positions of Responsibility

<b>Wing Representative</b>	Hostel Wing Representative in Student Panchayat	(2022 – 2023)
<b>Core-Member</b>	Alpha - Finance Club of IIT Goa	(2023 - 2024)
<b>Event Overseer</b>	Cepheus KBC Event Overseer	(2023 – 2024)

## Extracurriculars & Hobbies

- Committed to environmental stewardship, volunteering with Varaha, the Climate Change Society of IIT Goa, to clean various beaches.
- Gaming enthusiast, engaging in fps, strategic, indie and open-world gameplays.
- Competitive table tennis player, participating in tournaments and friendly matches in spare time.
- Dedicated bookworm with a love for literature, exploring diverse genres and authors.