

# Dhruv Sharma

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## EDUCATION

### Indian Institute of Technology Patna

*ELECTRICAL AND ELECTRONICS ENGINEERING, 3rd Year, CGPA: 6.73*

Bihta, Bihar, India

*November 2022 - May 2026*

### No. 1 Air force School

*Senior Secondary (Class 12<sup>th</sup>), CBSE, Percentage: 93.6%*

Gwalior, M.P., India

*April 2020 - May 2021*

## EXPERIENCE

### Product Intern

*May 2025 – July 2025*

*Slothpays Private Limited (Early-stage Startup)*

*Remote*

- Built an end-to-end **AI Interviewer Platform**, a multi-tenant SaaS for adaptive coding and behavioral interviews.
- Implemented **Gemini Live voice interviews**, real-time coding sandbox, and **AI proctoring** with webcam-based monitoring.
- Developed the core **FastAPI + React + MongoDB** backend with secure OTP auth, ATS integration, and LangGraph-driven flows.

### Research Intern — Efficient Attention for Wireless Localization

*2025*

*Large Wireless Localization Model (LWLM)*

*IIT Patna*

- Designed a sparse, streaming attention mechanism (**DuoAttention**) for LWLM, enabling real-time CSI-based localization with a constant **KV-cache 6 MB**.
- Achieved **30% lower latency** while retaining **88.5% of full-attention accuracy** (0.29 m vs 0.26 m RMSE) on DeepMIMO Single-BS localization.
- Developed a fully sparse streaming architecture and ran ablations (optimal window **W=32**, harmful long history, critical sink tokens).

## PROJECTS

### Mitochondria Segmentation via Fine-tuned SAM | PyTorch, SAM, Computer Vision, MONAI

*2025*

- Fine-tuned the **Segment Anything Model (SAM)** for mitochondria segmentation on high-resolution electron microscopy images.
- Built a custom **preprocessing and training pipeline** using Patchify, dataset filtering, MONAI losses, and bounding-box prompts.
- Achieved accurate semantic segmentation on **unseen cellular structures** using a fully custom PyTorch workflow.

### Latent Diffusion Model (Stable Diffusion) — From Scratch | PyTorch, NumPy, Matplotlib

*2025*

- Implemented a simplified **Stable Diffusion** pipeline from first principles to understand latent-space denoising and generative modeling.
- Applied diffusion models for **medical image enhancement**, augmentation, and denoising in pathology datasets.
- Experimented with **VAE encoders**, noise scheduling, and latent representation learning for efficient sampling.

### Custom Transformer Neural Machine Translation System(PyTorch) | PyTorch, Python, NLP

*2025*

- Implemented a full **Transformer** from scratch—embeddings, positional encodings, multi-head attention, encoder-decoder, and projection head.
- Built the complete **training pipeline** with custom tokenization, padding/causal masks, and label smoothing.
- Trained on OPUS Books (En→It), achieving strong translation quality with a fully custom implementation.

## ACHIEVEMENTS

- Selected for **Amazon ML Summer School 2025** (Top 5% of 60K+ applicants).
- Ranked **165 Worldwide** in **Kaggle Skill Assessment** for predictive modeling.
- Built **Eureka-AI**, recognized at **OpenAIxNXTwave 2025**; achieved **top 500 / 100K+** in a state-level hackathon.
- Secured **AIR 4998 (JEE Mains)** and **AIR 6770 (JEE Advanced)**.

## SKILLS SUMMARY

- Programming & Tools:** Python, C++, Java, SQL, JavaScript, Git, PostgreSQL, MATLAB
- Libraries/Frameworks:** PyTorch, TensorFlow, Scikit-learn, FastAPI, Flask, React, LangChain, OpenCV, Pandas, NumPy
- Expertise:** AI/ML, GenAI (RAG, LLM apps), Data Science, Cybersecurity

## PORS AND CO-CURRICULAR ACTIVITIES

- Inter IIT Tech Meet:** Represented IGDC Team of IITP in Inter IIT and qualified in the top 4. *December 2023*
- Sub-Coordinator** of Njack, The Computer Science club of IITP. *July 2023*
- Speed Cubing:** Stood 1st in Unscramble 2.0 conducted by the **Hexachrome** Club at IITP. *April 2023*