# Arush Singhal

**B.E** in Computer Engineering Thapar Institute of Engineering and Technology

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#### **SUMMARY**

B.E. Computer Engineering student with strong foundations in AI/ML, Data Science, and DSA. Skilled in Python, C++, and Deep Learning (OpenCV, Transformers). Passionate about building scalable, real-world AI systems. Seeking internship opportunities in Core AI/ML, Data Science or SDE roles.

#### **EDUCATION**

#### Thapar Institute of Engineering and Technology

Bachelor of Engineering in Computer Engineering (CGPA: 7.0)

Patiala, Punjab, India July 2023 - September 2027

April 2009 – June 2023

Gurgaon, Haryana, India

# **Amity International School, Sector-46**

Nursery - Class 12 (PCM)

# **SKILLS**

- **Programming Languages:** C++, Python, C, R
- Data Structures and Algorithms: Advanced proficiency (Greedy Algorithm, Graph, Dynamic Programming, Trees etc.)
- AI/ML Frameworks: TensorFlow, OpenCV, Scikit-Learn, Deep Learning, LangChain, Transformers, Pytorch, CNN, XGBoost
- Web Development: Flask, Django, HTML, CSS, API Integration
- DevOps: Docker
- Tools and Platforms: Git, GitHub, VSCode, Raspberry Pi, Linux, Raspbian
- Databases: Oracle, MySQL, PostgreSQL, Firebase
- Current Learning Areas: AI Model Optimization, LLMs, Transformers, Vision Transformers, LLM Fine Tuning, MCP
- Core Skills: SDLC, Problem Solving, Communication, Teamwork, Project Management, Analytical Thinking

#### **PROJECTS**

## ShakespeareGPT | Transformer from Scratch

PyTorch, NLP, Gradio

- Implemented full Transformer architecture (multi-head attention, layer norm, positional encoding) per "Attention Is All You Need".
- Trained on Tiny Shakespeare dataset; achieved perplexity of 18.7 after 10 epochs and 94% input coherence.
- Deployed model with Gradio + Streamlit, enabling real-time user prompts and 250ms generation latency.

## **Real Estate Investment Tracker**

React, Node.js, Oracle SQL, PL/SQL 😱

- Built a full-stack real estate analytics platform in a 3-member team, featuring React dashboard, REST API backend, and raw SQL/PLSQL-based Oracle DB with a responsive UI with live filtering and investor dashboards supports 50+ user test cases
- Designed a fully normalized schema (3NF) with 6+ entities; enforced referential integrity via PK/FK constraints.
- Implemented 15+ analytics modules including ROI, cash flow, rent overages, and lease expiry using advanced SQL joins and PL/SQL procedures, triggers, cursors.

## **CERTIFICATIONS**

- PyTorch for Deep Learning Md Bourke Udemy
- Beginning C++ Programming From Beginner to Beyond Udemy
- Generative AI Learning Path Specialization Google Cloud
- LLM by Google Cloud Coursera
- Neural Networks and Deep Learning Stanford University
- Supervised Machine Learning: Regression and Classification Stanford University

# **EXPERIENCE**

## **Thapar ACM Student Chapter**

Patiala, Punjab, India August 2024 - Present

Tech and Marketing Executive - Core Member

- Led 5+ AI Web Dev workshops, increasing student engagement by 40% (200+ attendees).
- Fostered partnerships with industry experts to deliver guest lectures, improving the chapter's outreach and visibility.

#### **ACHIEVEMENTS**

- JEE Advanced Qualifier—Top 5% in India
- NCSC National Level Winner
- Patent Pending on Eco Brick—Tested at IIT Delhi for environmental Innovation