Harsh Pratap Singh

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Education

B.Tech in Computer Science and Engineering   *VIT Bhopal University, Madhya Pradesh (2022 – 2026)*
  – CGPA: 8.87 / 10

Class XII (Intermediate) – CBSE   *Central Academy, Jabalpur (2022)*
  – Score: 87.2%

Class X (Matriculation) – CBSE   *K.V no 1. G.C.F, Jabalpur (2020)*
  – Score: 91.4%

Technical Skills

C, C++, Python, TensorFlow, Keras, Scikit-learn, NumPy, Pandas, Power BI, HTML, CSS, Flask, MySQL, Docker, Git/GitHub

Project Experience

Transformer Model for English-to-Hindi Translation — Self Project   *Oct 2024 – Dec 2024*

  – Built a Transformer-based NLP model inspired by the "Attention Is All You Need" architecture.

  – Implemented multi-head attention and encoder-decoder design with positional encoding.

  – Preprocessed datasets using custom tokenizers with padding and masking.

  – Reached strong translation accuracy on a parallel English-Hindi corpus.

  – Tech Stack: Python, TensorFlow, Deep Learning, NumPy.

IntelliSearch - Distributed Search Engine — Ongoing Self Project   *Aug 2025 – Present*

  – Developing a distributed search engine with a scalable backend architecture.

  – Applied core ranking algorithms including PageRank and TF-IDF with cosine similarity for query relevance.

  – Optimized document storage and retrieval using MongoDB integrated with Go-based backend services.

  – Built a web crawling pipeline incorporating backlink and outlink analysis for link graph construction.

  – Tech Stack: Go, MongoDB, Distributed Systems, Information Retrieval, RESTful APIs.

PolypClassifier - Automated Polyp Detection — Group Project   *Feb 2024 – Apr 2024*

  – Created a CNN-based medical image classification system for colorectal polyp detection.

  – Tuned hyperparameters, with a 0.9 dropout rate producing optimal performance.

  – Boosted accuracy by 15% through extensive data augmentation and parameter optimization.

  – Initial Performance: 80% (Training), 79.1% (Validation).

  – Final Performance: 96.5% (Training), 94.9% (Validation).

  – Tech Stack: Python, Keras, TensorFlow, NumPy, Matplotlib, Scikit-learn.

Co-Curricular Activities

  – **LeetCode:** Solved 1000+ problems in Data Structures and Algorithms, ranked in the top 589/26,000+ globally in biweekly contests, and maintained a 500+ day streak while earning 26 badges.

  – **GeeksforGeeks:** Achieved Contest Rating 1770 with a peak Global Rank of 3656.

Extracurricular Activities

  – Passionate reader: completed 100+ books, including *Siddhartha*, *Animal Farm*, and *The Myth of Sisyphus*.

  – Philosophy enthusiast influenced by Confucius, Friedrich Nietzsche, and Albert Camus.

  – Completed an 8-hour Udemy course on Mind Mapping for strategic planning.