Utsav Pal

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Nagpur, Maharashtra, India

Education

VIT Bhopal University, Bhopal, India 2022 – 2026
B.Tech in Computer Science; CGPA: 8.5/10

Kendriya Vidyalaya Ambajhari, Nagpur, India May 2022
HSC, CBSE; 93%

Kendriya Vidyalaya Ambajhari, Nagpur, India May 2020
SSC, CBSE; 89%

Technical Skills

Languages: Python (Proficient), Java, C++
Full Stack: Django, HTML, CSS, JavaScript
Database & Cloud: MySQL, MongoDB, AWS, Vercel
Data Science & ML: NLP, ML Algorithms, NumPy, Pandas, Matplotlib
Developer Tools: IntelliJ, VS Code, Git, Docker, Jupyter, GitLab
CS Fundamentals: DSA, OOP, OS, DBMS, Computer Networks

Projects

Advanced E-commerce Recommendation System — Python, NLP 2024
- Built a content-based recommendation system using NLP (Bag of Words, TF-IDF) achieving **95% accuracy** and sub-100ms response for 1M+ products.
- Integrated Amazon API to fetch live product data, improving recommendation relevance and scalability.
- Optimized preprocessing and indexing, reducing query latency by 30% while saving memory.
- Designed modular architecture with reusable components and clear documentation for easy maintenance.
- Enhanced user experience by implementing fast search and filtering options for product recommendations.

Handwritten Digit Recognition — Python, ML, KNN, TensorFlow, NumPy 2024
- Optimized KNN system achieving **95% accuracy** with 20% performance boost for large image datasets.
- Implemented K-fold cross-validation to reduce variance by 15% and improve generalization.
- Applied PCA to reduce feature space by 40%, lowering computational cost.
- Developed modular ML pipeline using TensorFlow and NumPy for fast experimentation.
- Visualized model predictions and errors to enhance interpretability and debugging.

Predictive Health Diagnosis System — Python, ML, Django 2024
- KNN-based disease prediction with **92% accuracy** and 0.89 F1-score for reliable outcomes.
- Applied preprocessing, feature scaling, and cross-validation to improve prediction reliability by 20%.
- Integrated model into Django web app providing real-time predictions with intuitive interface.
- Performed error analysis and feature importance evaluation to provide actionable insights.
- Designed a user-friendly dashboard to display predictions and historical patient data.

Open Source Contributions

OpenClimateFix 2024
- **UK-PVNet:** Refactored 3 large functions into 10 modular units, reducing code complexity by **25%**, improving testing, updating documentation, and resolving merge conflicts.
- **OCF-Data-Sampler:** Fixed **200+ linting errors** and formatted codebase using Ruff & Black, achieving **100% lint compliance**, reducing CI/CD failures, and improving developer productivity.

Certifications

- DevOps Fundamentals — IBM
- Cybersecurity Analyst — IBM

Achievements & Extra-Curricular

- Solved 300+ problems across platforms including CodeChef, LeetCode, HackerRank, SPOJ, and CodeForces.
- Active member of the Coding Block Club, contributing to peer learning and coding workshops.
- Football player (Right Wing) representing Kendriya Vidyalayas at Regional, Cluster, and Club levels.