GAURAV YOGESH KULKARNI

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EDUCATION

The Ohio State University, Columbus, USA *Expected: May 2026*
Masters in Computer Science and Engineering **GPA: 3.8/4**
Courses: Advanced Artificial Intelligence, Natural Language Processing, Data Mining, Data Visualization, Algorithms, Advanced OS.

K J Somaiya College of Engineering, Mumbai, India *August 2020 – June 2024*
Bachelors in Computer Engineering *CGPA: 8.92/10*
Courses: Data Structures, Algorithms, Soft Computing, Software Engineering, Cloud Computing, Artificial Intelligence.

TECHNICAL SKILLS

- **Programming Languages:** C/C++, Java, Python, Advanced JavaScript, Shell Scripting, MATLAB, XML.
- **Frameworks/Libraries:** React JS, TypeScript, MERN Stack, TensorFlow, Keras, Pytorch, OpenCV, Scikit-Learn, Pandas, SciPy.
- **Domain Skills:** Data Science, Exploratory Data Analysis, Computer Vision, Machine Learning & Deep Learning.
- **Developer Tools:** Git, GitHub, Postman, Tableau, PowerBI.
- **Database & Technologies:** PySpark, SQL, PostgreSQL, MongoDB.
- **Certificates**: IBM AI Engineering specialization – June 2024 | AWS specialization – 2023 | Blockchain Specialization – University of Buffalo, June 2022.

PROFESSIONAL EXPERIENCE

Wexner Medical Center, The Ohio State University, Columbus, USA | *Student Research Assistant* *January 2025 – Present*
- Preprocessed large-scale datasets on T cells, B cells, and microbiota, ensuring data quality and consistency for machine learning models. Leveraged OSC high-performance GPUs for analysis and insight generation.
- Applied clustering techniques and developed automated pipelines using R, Seurat, and MixCR to analyze immune cell data, extract populations, track mutations, and generate visualizations like UMAP and volcano plots.

Converge CollegePond EduTech Pvt Ltd., Mumbai, India | *Data Analyst Intern* *January 2024 – May 2024*
- Built a college selection model using Random Forest algorithm and data mining techniques, reducing manual effort by 60%, saving 120+ hrs. weekly, and boosting student enrollments by 35%.
- Built ETL pipelines for data ingestion, data preprocessing, and feature engineering, reducing processing time by 40%.
- Deployed end-to-end models with Docker and Flask on AWS EC2 and Elastic Beanstalk. Tracked experiments with MLflow for MLOps, resulting in a 45% improvement in data-driven decision-making through statistical analysis and data visualization.

ComEd Learning, Mumbai, India | *Software Developer Intern* *April 2022 – June 2022*
- Led a team of 5 full-stack developers to build a React.js website, optimizing API calls and reducing data-fetching time by 22%.
- Designed and implemented resume templates using Figma, React and TypeScript, following Agile software development life cycle methodologies, improving user experience by 25% and reducing load time by 15%.
- Enhanced FastAPI endpoints with caching and query optimization, reducing response time by 30% while streamlining the CI/CD data pipeline with Jenkins, improving test coverage by 60% and automating deployment.

KJ Somaiya College of Engineering, Mumbai, India | *Student Research Assistant* *April 2022 – May 2022*
- Refactored hospital management system, upgrading it from managing a single hospital to supporting multiple hospitals with added toggling features and multiple databases, resulting in a 40% increase in user engagement through improved usability.
- Engineered a robust database structure using MySQL, ensuring secure and efficient management of patient and hospital data, resulting in a 15% reduction in data inconsistency.
- Optimized backend, integrated REST APIs to fetch patient records, automate invoicing, and organize patient history, reducing data retrieval time by 25% and improving efficiency by 35% with PDF conversion.

PROJECTS

Bird Species Recognition (Deep Learning Project) **August 2024 – December 2024**
Python, PyTorch, TensorFlow, OSC(Ohio Super Computers), Keras, VGG16 (CNN), Resnet, Transfer Learning, OpenCV, Librosa.
- Engineered a hybrid multimodal system for bird species recognition, integrating data extraction from a 555-species dataset and leveraging high-performance computations with GPU acceleration on OSC.
- Performed EDA, data cleaning, and data analytics, applying noise filtering, image segmentation, and feature extraction for Mel-spectrogram audio classification. Fine-tuned ResNet50, VGG16 using Transfer Learning.
- Architected a data modelling approach to fuse modalities, optimizing predictions with weighted confidence scores, achieving 85% accuracy, and visualizing outcomes.

Sign Insight (AI-ML Project)
Python, Matplotlib, Seaborn, Flask, TensorFlow, Keras, Media pipe, Jupyter.
- Developed and deployed a real-time Hand Sign Detection system leveraging CNNs and advanced image processing techniques to accurately recognize and classify Indian Sign Language (ISL) gestures.
- Converted detected gestures into captions, enhancing relationship-building with the deaf and hard-of-hearing community.
- Established deep learning models using TensorFlow and Keras, achieving a high accuracy of 80% in gesture classification through extensive training and hyperparameter tuning, and integrated OpenCV for efficient image processing.