Bhushan Charpe

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Education

Vishwakarma University, Pune *2023 – 2027*
B.Tech in Computer Engineering
- School of Engineering Sciences
- Grade: 8.0

HSC Board, Amravati *2022*
12th in Electronics Science, N.P. Junior Science College
- Percentage: 81%

SSC Board, Amravati *2020*
10th Board Exam, N.P. Vidyalaya
- Percentage: 90%

Experience

Reinvent Design Technologies LLP, Pune *July 2024 – Oct 2024*
Intern
- Simulated Building projects on IES-VE software.
- Simulated Apartment plans using Flucs – daylight model on IES-VE.
- Simulated and processed building plans on Suncast model.

Binghamton University x Vishwakarma University, Pune *Aug 2024 – Dec 2024*
Intern
- Detected diseases in oranges using machine learning algorithms.
- Created dataset of 12,000+ orange images manually.

iNeuron Intelligence Pvt Ltd, Online *Nov 2024 – Present*
Deep Learning Project Intern
- Developing Automatic Car Parking System app using deep learning.
- Utilizing APIs and OPS pipeline for model building.

Projects

Smart IoT Device Identification
- Advanced machine learning system to identify IoT devices based on their network traffic patterns.
- Enhances network security and device management capabilities.

Emotion Detection Using Machine Learning
- Developed a real-time emotion recognition system using facial expression analysis powered by deep learning.

EdgeCompress - Foundation Model Compression
- EdgeCompress is an AI model compression framework designed for edge deployment.

Power Fault Prediction System
- AI-powered electrical grid monitoring and fault prediction system with real-time monitoring capabilities.

BigBuddie Platform
- Comprehensive web platform featuring dynamic content management and a modern, user-friendly interface.

Forest Fire Detection using Machine Learning
- Developed ML-based model for detecting forest fires.
- Awarded Best Project at competition held by Binghamton University.

Ulcerative Colitis Detection and Prevention using Machine Learning
- Worked with a team to build ML models for healthcare innovation.

Technical Skills

Programming and Scripting Languages

- **Proficient:** Python, JavaScript, C
- **Familiar:** SQL, Bash scripting

Frameworks and Libraries

- **Machine Learning & Deep Learning:** TensorFlow, PyTorch, Keras, Scikit-learn
- **Web Development:** Flask, FastAPI
- **Computer Vision:** OpenCV, Mediapipe
- **Data Analysis & Visualization:** Pandas, NumPy, Matplotlib, Seaborn

Machine Learning and Deep Learning Expertise

- **Model Development:** Convolutional Neural Networks (CNNs), Recurrent Neural Networks (RNNs), Transfer Learning, EfficientNet
- **Optimization:** Model quantization, hyperparameter tuning, and deployment for real-time inference
- **Feature Engineering:** Dimensionality reduction, data augmentation, image preprocessing

Tools and Platforms

- **Development Tools:** Git, Jupyter Notebook, Google Colab
- **Cloud Platforms:** AWS (EC2), Google Cloud Platform (GCP)
- **API Tools:** API integration, Console

DevOps and Deployment

- **Containerization:** Docker, Docker Compose
- **Model Deployment:** Flask-based REST APIs, TensorFlow Serving
- Integration of real-time processing pipelines for scalable applications

Publications

- **Forest Fire Detection using EfficientNetV2 (2024)**
  Link to paper (Click here)
- **Optimizing Energy Efficiency in Modern Buildings Using IoT and Machine Learning (2025)**
  Link to paper (Click here)

Achievements

- **AI/ML Fusion National Hackathon Winner**
  Won 10K cash prize, trip to Malvan, and Reliance goodies
- **Best Project Award, Vishwakarma University**
  For Forest Fire Detection System