Bhuvanyu Walia

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GitHub | Leetcode | LinkedIn

Education

Thapar Institute of Engineering and Technology, Patiala June 2026
B.E. Computer Engineering *Current GPA: 8.83 /10*
The Frank Anthony Public School, New Delhi June 2021
ICSE Board *Percentage: 91.2 /100*

Experience

DRDO Scientific Analysis Group (SAG), Metcalfe House, New Delhi (December 2024 - January 2025)
Research Internship - Training Completion Certificate

- Researched on implementation of Adversarial Evasive Attacks on Deep Learning Models to make Object-detection / Image-classification Models provide inaccurate data / results. Various Implementation Techniques (FGSM, JSMA, DEEPFOOL) were studied and implemented using Keras-Tensorflow, openCV YOLO., on CNN models and results were drawn for further improvement of the attacks

Major Projects

WanderLust - Travel Listing Web Application

- A Full Stack Web Application allowing users to review, post, edit and delete travel listings with images, pricing and description
- Tech Stack - Node.js, Express.js, MongoDB Atlas, Mongoose, EJS Templating, Bootstrap Styling, Cloudinary, Multer, Passport.js, Express-Session
- Implemented User Authentication and Authorisation using Passport.js (Local Strategy) with hashed password storage and secure sessions and Integrated Cloudinary API and Multer Storage for real-time image uploads and management
- Implemented Modular MVC architecture with RESTful Routing, middleware layers and error-handling using custom ExpressError classes

Sudarshan - World Organisations and Nations Informatic Web Application

- A Full Stack Web application for managing, visualising and querying data related to world organisations and countries
- Tech Stack**:** Node.js, Express.js, MongoDB Atlas, Mongoose, EJS, Bootstrap, Cloudinary, Multer, JavaScript, HTML, CSS
- Architecture: Followed MVC architecture, modularizing routes, controllers, and views for maintainable, scalable development
- Advanced Query System: Built dynamic filtering using MongoDB operators ($regex, $in, $gte, $lte) for real-time search by region, population, GDP, currency, etc.
- Deployed on Render with environment variable configuration for secure cloud hosting and auto-deploy on GitHub push

OcuMedAI - Deep Learning Based Cardiovascular Risk Assessment System using Retinal Images

- Tech Stack - Python, TensorFlow, Keras, OpenCV, XGBoost, Scikit-learn, Pandas, Cascaded Machine Learning
- Developed **CNN-based deep learning model (InceptionV3)** to classify **Diabetic Retinopathy** into 5 levels (No DR, Mild, Moderate, Severe, Proliferate) from retinal fundus images.
- Built an **EfficientNet-based regression model** to predict **Hypertension Risk** (0–100%) directly from fundus images with optimized MSE loss.
- Designed an **XGBoost regression model** to estimate **HbA1c levels** using demographic and clinical data (age, sex, BMI, smoking, hypertension status).
- Designed an integrated **OcuMedAI pipeline** combining image-based and tabular inputs to sequentially predict DR, HTN risk, HbA1c, and Atherosclerosis risk.

Skills

Development - **C, C++, Java, Python, R, MATLAB, SQL, Data Structures and Algorithms, MongoDB, MySQL, HTML, CSS, JavaScript, Bootstrap, TailWind CSS, React.js, EJS, Node.js, Express.js, RESTful API development, MVC architecture, Passport.js**
Deployment and Testing - **Git, GitHub, Software Testing and Automation using Selenium and TestNG framework**
ML/DL - **Machine Learning and Deep Learning, Keras Tensorflow, Computer Vision, OpenCV, YOLO**

Positions of Responsibility

⦿ **SPICMACAY** - Finance Secretary ⦿ **NCC Army Wing** : 5 Punjab Battalion - Corporal