

Anhar Munir

Software Engineer · Full Stack · Embedded Systems & IoT · AI/ML

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ABOUT ME

Final-year BS Software Engineering student at FAST-NUCES, Islamabad (graduating 2026), with hands-on experience spanning full-stack web development (MERN), embedded systems & IoT, and applied AI/ML engineering. I have built production-level applications — from AI-powered smart glasses for the visually impaired to real-time computer vision systems — and developed deep expertise in edge AI deployment on resource-constrained hardware. I thrive at the intersection of intelligent systems, clean architecture, and real-world problem solving, and am actively seeking a full-time software engineering role.

EDUCATION

BS Software Engineering

2022 – 2026 (Final Semester)

FAST – National University of Computer and Emerging Sciences (NUCES), Islamabad

Relevant Coursework: OOP, DSA, Databases, Algorithms, Software Engineering, AI/ML, Web (MERN), DevOps, Cloud (AWS), Information Security

Intermediate in Science (Pre-Engineering)

2020 – 2022

Quaid-e-Azam Public College, Gujranwala

SKILLS

Languages: Python, JavaScript, TypeScript, Java, C/C++, C#

AI & Machine Learning: PyTorch, Scikit-learn, TensorFlow Lite, Transfer Learning, Model Quantization (INT8), YOLOv8, Logistic Regression, Naive Bayes, Decision Trees, KNN, Cross-Validation, Class Imbalance Handling, Ensemble Learning

Deep Learning: ResNet18, Swin Transformer, DistilBERT, CNNs, HuggingFace Transformers, AdamW Optimizer

NLP: Text Classification, TF-IDF, Bag-of-Words, N-gram Feature Extraction, Transformer Fine-Tuning, TTS, STT

Computer Vision: OpenCV, Image Preprocessing, Data Augmentation, Object Detection, Medical Imaging, CLAHE, Perspective Transform, OCR (Tesseract / EasyOCR)

Web Development: React.js, Next.js, Node.js, Express.js, FastAPI, REST API Development, TailwindCSS

Databases: MongoDB, Mongoose ODM, MySQL, SQL Server, NoSQL Schema Design

Authentication & Security: JWT, bcrypt, OAuth 2.0, Token-Based Auth, AES Encryption, RSA Encryption, SHA Hashing

Embedded Systems & IoT: Raspberry Pi 4B, Edge AI Deployment, I2C & UART Protocols, GPS Module (NEO-6M), ToF Distance Sensor

Data Science: Pandas, NumPy, Matplotlib, Seaborn, EDA, Feature Engineering, ROC-AUC, Confusion Matrix, Precision/Recall/F1

Testing: Jest, React Testing Library, Supertest

Tools & Platforms: Git & GitHub, Google Colab (GPU), Jupyter Notebook, VS Code, Postman, Roboflow, Kaggle, Hugging Face, MongoDB Atlas, Docker, AWS (EC2, RDS, S3, Elastic Beanstalk), Vercel, Jenkins

Software Engineering: Agile, DevOps, CI/CD, Software Project Management, Quality Assurance

WORK EXPERIENCE

Web Development Intern

2024 (8 Weeks, Remote)

COMPU Services · Remote

- Developed and maintained full-stack web applications using the MERN stack (MongoDB, Express.js, React.js, Node.js) in a remote environment.
- Built RESTful APIs and integrated them with responsive front-end interfaces using React.js and TailwindCSS.
- Collaborated with a small team following Agile workflows, participating in code reviews, sprint planning, and iterative feature delivery.
- Gained practical exposure to database design, authentication flows (JWT), and deployment pipelines during the 8-week internship.

APPTech Gujranwala · Gujranwala, Pakistan

- Managed Google Search Console and Google Trends to monitor website performance and identify keyword opportunities.
- Executed on-page SEO (meta tags, headings, content optimization), off-page SEO (backlink outreach), and technical SEO (site speed, crawlability, sitemap submission).
- Built quality backlinks through directory submissions and outreach campaigns, improving domain authority for client websites.
- Produced SEO performance reports and provided actionable recommendations to improve organic search rankings.

PROJECTS

SightWise – AI Smart Glasses for Visually Impaired (Final Year Project) | YOLOv8 · TFLite INT8 · Raspberry Pi 4B · Vosk STT · pyttsx3 · Tesseract OCR · OpenCV · GPS

- Developed a complete AI-powered smart glasses system for visually impaired individuals integrating YOLOv8-based indoor and outdoor object detection, achieving real-time inference on edge hardware.
- Built Pakistani currency recognition module with 99.9% accuracy and Tesseract OCR for real-time text reading from documents and signage.
- Implemented offline GPS navigation, live location sharing, and a fully voice-controlled interface using Vosk STT and pyttsx3 TTS.
- Optimized and deployed all AI modules on Raspberry Pi 4B using TFLite INT8 quantized models, achieving real-time edge inference within power constraints.

FogSight – Real-Time Vehicle Detection in Foggy Conditions (In Progress) | YOLOv8 · Hugging Face · React Native · Image Dehazing · OpenCV · Ultrasonic Sensor

- Developing an AI-powered road safety system that detects vehicles in foggy conditions via a mobile app integrated with a forward-facing camera and deep learning models hosted on Hugging Face.
- Designed an image dehazing pre-processing pipeline using OpenCV to enhance visibility before feeding frames into the YOLOv8 detection model, improving inference accuracy in adverse weather.
- Integrating an ultrasonic distance sensor to estimate proximity of detected vehicles and trigger real-time audio alerts through the car's speakers for driver safety.
- Targeting practical affordability and retrofittability — the system requires no vehicle hardware modifications beyond a mounted camera and smartphone.

BreastCare AI – Deep Learning Breast Cancer Detection System | Swin Transformer · FastAPI · React.js · PyTorch · CBIS-DDSM · HuggingFace · Transfer Learning

- Built a full-stack AI web application for breast cancer detection using a fine-tuned Swin Transformer trained on the CBIS-DDSM mammography dataset, achieving 87.5% accuracy and 0.884 ROC-AUC.
- Implemented a dual-view ensemble analysis system (CC + MLO views) mimicking clinical radiologist workflow, reducing false positives through probability averaging.
- Developed a FastAPI backend with optimized model inference and caching, paired with a React frontend featuring drag-and-drop image upload, real-time results, and automated PDF report generation.
- Applied transfer learning, class weighting, and data augmentation techniques to address medical imaging challenges on ~30,000 image dataset.

Depression Detection from Visual Content | ResNet18 · Logistic Regression · PyTorch · Scikit-learn · OpenCV

- Developed a binary classification system to detect depression indicators from image data using both traditional ML and deep learning approaches on a 20,186-image dataset.
- Implemented Logistic Regression with grayscale image features (32×32) achieving 75% accuracy with strong generalization; built a ResNet18 transfer learning model with ImageNet pre-training for comparison.
- Analyzed precision, recall, F1 scores, and computational efficiency across architectures to provide deployment recommendations based on accuracy/speed trade-offs.

Sarcasm Detection on Reddit (Sentiment Analysis) | DistilBERT · TF-IDF · Logistic Regression · Naive Bayes · NLP

- Conducted a comprehensive comparative study of sarcasm detection approaches on 1.3 million Reddit comments, implementing three models: Naive Bayes (66.55%), TF-IDF + Logistic Regression (70.80%), and DistilBERT Transformer (76.65% accuracy).
- Performed extensive data preprocessing, n-gram feature engineering, and contextual analysis demonstrating how bidirectional transformer context outperforms statistical baselines.
- Both TF-IDF and DistilBERT achieved 100% accuracy on live prediction tests; provided evidence-based model selection recommendations balancing performance, interpretability, and compute cost.

Identity Management System (IMS) | *MERN Stack · JWT · bcrypt · Next.js · TailwindCSS · GNews API · MongoDB*

- Developed a full-stack Identity Management System enabling users to manage multiple identity profiles across four distinct contexts: personal, professional, family, and online.
- Implemented secure authentication with JWT and bcrypt, context-based friend request workflows, and privacy controls for appropriate information sharing based on user relationships.
- Built RESTful APIs with Express.js and MongoDB for identity CRUD operations, integrated GNews API for dynamic content delivery, and designed a responsive Next.js frontend with light/dark theme support.

Secure Chat System | *AES Encryption · RSA Encryption · SHA Hashing · JavaScript · CSS*

- Built a web-based messaging and file sharing application with end-to-end security using AES encryption for messages, RSA for key exchange, and SHA hashing for data integrity verification.
- Implemented secure file upload/download workflows ensuring all transmitted data remains encrypted at rest and in transit.

Ergonomic Posture Assessment Agent | *Python · FastAPI · MediaPipe · OpenCV · Docker · Hugging Face Spaces*

- Built an AI agent that analyzes human posture from images using MediaPipe landmark detection and OpenCV processing.
- Developed a REST API with posture scoring and ergonomic feedback endpoints; containerized with Docker and deployed publicly on Hugging Face Spaces with health-check monitoring.

Cloud Photo Gallery Application | *React.js · Node.js · AWS (EC2, S3, RDS, Elastic Beanstalk) · MySQL*

- Built a scalable cloud-native photo gallery with JWT authentication and S3-based media storage.
- Deployed the full application stack on AWS using EC2, RDS, and Elastic Beanstalk.

Brain Buddy – AI Educational Platform | *React.js · Next.js · Node.js · GPT-4 · Voice Assistant*

- Built an AI-powered educational platform featuring a voice assistant, GPT-4-generated personalized lessons, and adaptive exercises tailored to each student's learning progress.

Dream Nest – E-Commerce Web Application | *Next.js · React.js · Node.js · MongoDB*

- Built a full-featured e-commerce platform for furniture, mattresses, and sofas with product listings, cart management, and checkout workflows.

HR Management System | *React.js · Node.js · MongoDB*

- Developed a comprehensive HRMS with employee and admin dashboards supporting employee record management, salary calculation, and a leave management system.

Online Consultancy Platform | *React.js · Next.js · Node.js*

- Developed a client-facing web platform aggregating university information and blog content with a responsive UI and SEO-optimised structure.

Movies App | *React Native · iOS & Android*

- Built a cross-platform mobile application similar to IMDb displaying movie/TV show ratings, cast information, reviews, trailers, and related recommendations.

CERTIFICATIONS

- SEO Certification – APPTech Gujranwala (Internship Participant Certificate)
- AWS Academy Graduate – Cloud Foundations | Amazon Web Services