# VAISHNAV AK

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## OBJECTIVE

AI-focused Biomedical Engineer with expertise in Machine Learning, Deep Learning, and Medical Image/Signal Processing. Experienced in hospital-based biomedical equipment handling and building AI-driven healthcare diagnostic models. Seeking to contribute to next-generation medical device innovation and AI in healthcare applications.

## EDUCATION

**AI EXPERT, Professional Training**,     July 2024 – Oct 2024
DataMites, ID: 28250328756528

**CERTIFIED DATA SCIENTIST, Professional Training**,     Sept 2023 – Feb 2024
DataMites, ID: 65240620506620

**BTech in Applied Electronics and Instrumentation**,     July 2019 – June 2024
GOVERNMENT ENGINEERING COLLEGE KOZHIKODE ,CGPA - 6.88

**BIO-MATHS, Higher Secondary Education**,     July 2017 – Mar 2019
G.H.S.S Vazhakkad ,Percentage:91%

## EXPERIENCE

**Biomedical Engineer Trainee**     Nov 2024 - May 2025
ASTER MOTHER HOSPITAL     *Malappuram, India*

- Assisted in installation, calibration, preventive and corrective maintenance of 100+ medical devices in a NABH-accredited multi-specialty hospital.
- Gained hands-on experience in biomedical equipment troubleshooting, safety testing, and compliance with hospital quality standards.

**Data Science and AI Consultant Intern**     Oct 2023 – June 2024
RUBIXE     *Bangalore, India*

- Contributed to AI-driven PoC projects solving real-world business problems using Python, Pandas, and Scikit-learn.
- Developed machine learning models for client use-cases, improving prediction accuracy by 90%.
- Led data preprocessing and feature engineering efforts, enhancing model performance and training efficiency.
- Translated theoretical ML algorithms into deployable, data-driven solutions in retail and healthcare domains.
- Collaborating with project teams to ensure impactful delivery of AI-based solutions.

## SKILLS

**Biomedical Engineering :** *Medical Image Processing, Maintenance, Calibration, Troubleshooting,*
**AI/ML , Data Science :** *Transfer Learning, Deep Learning, Supervised & Unsupervised Learning*
**Soft Skills :** *Analytical skills, Strategic Problem-Solving, Collaboration,Adaptability & Fast Learning*
**Programming Tools :** *Python, MATLAB, MySQL, TensorFlow,PyTorch, Scikit-learn, PowerBI*
**Languages:** *English (Fluent), Malayalam (Native), Tamil (Basic), Hindi (Basic)*

## CERTIFICATIONS

**CERTIFIED DATA SCIENTIST**, IABAC (ID: IAB1120176000)               June 2025 – June 2028

- Certified in core data science principles including data preprocessing, exploratory data analysis (EDA), statistical methods, and machine learning fundamentals. Demonstrated practical understanding of data workflows and analytical thinking using Python and related tools.

**AI EXPERT** , IABAC (ID: IAB1120175905)                                             May 2025

- Mastered AI pipeline: data handling, training ML/DL models, evaluation, optimization, and deployment using Python and libraries like TensorFlow & Scikit-learn.

**DATA SCIENCE FOUNDATION** ,IABAC (ID: IAB1120174667)                           Oct 2024

- Demonstrated proficiency in exploratory data analysis, data preprocessing, statistical thinking, and machine learning fundamentals

**MACHINE LEARNING** ,COURSERA (ID: WPDSNFXCRTWR)                           Nov 2023

- Foundational ML course covering supervised/unsupervised learning, regression, SVM, clustering, and optimization

**PYTHON FOR EVERYBODY** ,COUSERA (ID: M22GSCX3TWAU)                           Nov 2020

- Learned Python programming basics, data structures, and functions with real-world coding practice.

**MATLAB WORKSHOP** ,GEC Kozhikode & E-CELL IIT Bombay                           Jan 2021

- Hands-on workshop on MATLAB basics, programming, simulation, and engineering problem-solving.

## PROJECTS

**Diabetic Retinopathy Detection.** Transfer Learning — CNN — TensorFlow
Built a deep learning model using VGG16, ResNet50, and InceptionV3 for retinal image classification. Applied data augmentation, regularization , and hyperparameter tuning to improve accuracy and reduce overfitting.

**Pneumonia Detection.**Transfer Learning — Medical Imaging — Deep Learning
Developed a CNN-based diagnostic tool using pre-trained models (VGG16, MobileNet, DenseNet) to classify pneumonia from X-ray images. Performed model comparison, fine-tuning, and real-time deployment preparation

**Skin Disorder Detection.** Supervised Learning — Random Forest — XGBoost
Classified six types of Erythemato-Squamous Diseases (ESD) using structured dermatology data (366 samples, 35 features). Applied data cleaning, feature correlation analysis, and model comparison (Decision Tree, RF, SVM, XGBoost, Logistic Regression), achieving up to 93

**ECG Signal Classification.**  Deep Learning — CNN — LSTM
Developed a deep learning model using CNN and LSTM on the MIT-BIH Arrhythmia dataset for ECG signal classification. Applied signal preprocessing (filtering, normalization) and achieved high accuracy in detecting abnormal heart rhythms.

**Breast Cancer Detection.** Supervised Learning — Random Forest — XGBoost — SVM
Applied Random Forest, XGBoost, and SVM on the Wisconsin Breast Cancer dataset to classify tumor samples as benign or malignant. Achieved strong classification accuracy, supporting early cancer detection.

**Heart Disease Prediction.** Clinical Data — SVM — Random Forest — XGBoost
Trained ML models (SVM, Random Forest, XGBoost) on the UCI Heart Disease dataset. Performed exploratory data analysis (EDA) and feature engineering, achieving over 90

**EEG-Based Brainwave Analysis.**Machine Learning — CNN — Signal Processing
Implemented machine learning and deep learning algorithms to classify EEG brainwave patterns. Focused on epileptic seizure detection through signal preprocessing, normalization, and feature extraction to enhance accuracy and minimize false alarms.