Taha Abbasi

Biomedical Engineering Student · Machine Learning Developer

hello@vectorabbasi.ir · https://vectorabbasi.ir · github.com/TahaAbbasi211 · linkedin.com/in/tahaabbasi211 · Tehran, Iran

SUMMARY

Biomedical Engineering student working at the intersection of AI, biomedical signals, and software. I learn by building: ECG, EEG, and heart-disease machine learning projects with honest evaluation, and Android apps that run models on-device. All projects are open source.

EDUCATION

B.Sc., Biomedical Engineering (in progress) — Islamic Azad University, Central Tehran Branch (IAUCTB)
Coursework: Engineering Mathematics, Introduction to Biomedical Engineering, Principles of Medical Imaging.

PROJECTS

biomed-ml **Python · scikit-learn · Streamlit · pytest — GitHub**

- Extensible ML framework for biomedical data: datasets, feature extractors, models and experiments as separate modules, with an experiment defined by one small YAML file; Streamlit demo app and pytest suite.
- First module detects epileptic seizures in EEG segments (Bonn dataset, 11,500 segments): Random Forest F1 0.94, ROC-AUC 0.995 with group-aware cross-validation; the leaky random-split score (F1 0.96) is reported alongside for comparison.

ECG Arrhythmia Classification **Python · scikit-learn · Streamlit · Dart — GitHub**

- Heartbeat classification on the MIT-BIH dataset using an inter-patient split (22 train / 22 unseen test patients): 93% accuracy on unseen patients with 57 handcrafted features and a Random Forest.
- Honest error analysis: weak S-class performance (F1 0.18) documented. Model ported to Dart with golden test vectors; Streamlit demo and offline Android app.

Heart Disease Risk Prediction **Python · scikit-learn · SHAP · Kotlin — GitHub**

- Leakage-free ML pipeline on the UCI Cleveland dataset; cross-validated model comparison, final Random Forest test AUC 0.955 (small-test-set noise disclosed).
- SHAP explanations for every prediction; offline Android app whose Logistic Regression formula reproduces scikit-learn's predict_proba to 3e-16.

Tag — To-Do List (Android app) **Kotlin · Jetpack Compose · Room · DataStore — GitHub**

- Customizable to-do app with focus timer, reminders, themes, and five languages. Shipped as v1.7 on GitHub Releases (Android 8.0+): Jalali calendar, backup/restore, home-screen widget.

Wine Classification **Python · scikit-learn — GitHub**

- Comparison of four classic classifiers with scaled pipelines and a stratified split; Logistic Regression and Random Forest reached 100% test accuracy.

TECHNICAL SKILLS

Languages: Python, Kotlin, Dart

ML & Data: scikit-learn, TensorFlow, PyTorch, Pandas, NumPy, SciPy, Matplotlib, Streamlit, MLflow

Mobile & Tools: Flutter, Android (Jetpack Compose, Room, DataStore), Git & GitHub, Cloudflare Workers, D1, Kaggle

LANGUAGES

Persian (Native) · English (Professional) · French (Intermediate)