

# Raja Narendra Kumar Kappala

+1-928-266-7296 | [rajakappala4@gmail.com](mailto:rajakappala4@gmail.com) | Dayton, Ohio, USA

## PROFESSIONAL SUMMARY

Machine Learning Engineer with 3+ years of expertise in developing digital signal processing algorithms for physiological monitoring systems. Experienced in Python, C++, and MATLAB with strong feature extraction skills using TensorFlow, PyTorch, and scikit-learn for biosignal analysis and ML preprocessing.

## TECHNICAL SKILLS

**Programming Languages:** Python, C++, MATLAB, Java, JavaScript, HTML5, CSS3  
**Signal Processing:** SciPy, Librosa, DSP Pipelines, ECG/PPG Analysis, Feature Extraction, Filtering  
**Machine Learning:** TensorFlow, PyTorch, scikit-learn, CNN, LSTM, Signal Classification  
**Healthcare Technologies:** Biosignal Processing, Cardiovascular Monitoring, Medical Device Software  
**Development Tools:** Git, GitHub, Jenkins, Docker, Kubernetes, Visual Studio, Postman

## PROFESSIONAL EXPERIENCE

### Machine Learning Engineer

Accenture

May 2022 – July 2023

Hyderabad, India

Developed cardiovascular signal processing algorithms using Python and MATLAB for ECG/PPG analysis systems  
Built machine learning pipelines with TensorFlow and PyTorch for biosignal feature extraction applications  
Implemented real-time signal filtering and preprocessing using SciPy for physiological monitoring systems  
Created automated signal quality assessment algorithms achieving 92% accuracy in noisy signal detection  
Designed CNN-based models for heartbeat classification reducing false positive rates by 35% significantly  
Collaborated with biomedical engineers to optimize signal processing chains for cardiovascular devices  
Applied digital filtering techniques including bandpass and notch filters for biosignal noise reduction  
Developed feature extraction algorithms for heart rate variability analysis using time-frequency methods  
Integrated machine learning models with embedded systems for real-time cardiovascular risk assessment

### Data Scientist

Cognizant Technology Solutions

January 2020 – March 2022

Hyderabad, India

Built signal preprocessing pipelines using Python and MATLAB for physiological data analysis applications  
Implemented machine learning algorithms with scikit-learn for cardiovascular disease detection systems  
Created automated feature extraction tools for ECG signal analysis using wavelet transform techniques  
Developed real-time signal monitoring systems using WebSockets for continuous patient data streaming  
Applied advanced filtering methods including Kalman filters for motion artifact removal in PPG signals  
Built custom signal processing libraries for biomedical applications improving algorithm reusability  
Optimized signal analysis algorithms reducing computational complexity by 40% for embedded deployment  
Implemented automated peak detection algorithms for R-wave identification in ECG signal processing  
Developed signal validation frameworks using statistical methods for biosignal quality assessment

## KEY PROJECTS

### Cardiovascular Risk Assessment System | Python, TensorFlow, SciPy

January 2024

Built ML-based cardiovascular monitoring system using ECG/PPG signal fusion for stroke risk prediction  
Implemented advanced feature extraction achieving 89% accuracy in cardiovascular disease classification

### Real-Time Biosignal Processing Platform | Python, PyTorch, MATLAB

September 2024

Developed edge-deployed signal processing system for continuous physiological monitoring applications  
Created automated signal quality assessment reducing manual review time by 60% significantly

## EDUCATION

### Master of Science in Computer Science

University of Dayton

Graduated May 2025

Dayton, OH

## CERTIFICATIONS

AWS Certified Solutions Architect - Associate  
TensorFlow Developer Certificate  
MATLAB Signal Processing Certification