INDRESH M R

Chennai, India — indresh15.dev@gmail.com — LinkedIn — GitHub — Website

PROFILE

Undergraduate researcher specializing in **medical applications of artificial intelligence**, with hands-on experience in clinical biosignal analysis, medical image segmentation, and hospital-scale data. Actively involved in both academic and industry research, with a strong interest in building **clinically relevant, hardware-efficient AI systems** for real-world healthcare deployment. I aspire to pursue a PhD and a long-term career as a research scientist in medical AI.

EDUCATION

B.Tech in Computer Science and Engineering (Big Data Analytics)
SRM Institute of Science and Technology
Expected graduation: March 2027
Currently in 6th semester
CGPA: 9.92 / 10 (as of 4th semester, 5th semester results awaited)
Rank: 1st for two consecutive academic years

Higher Secondary Education (CBSE)
Dheeran Chinnamalai International Residential School
Score: 93%

Secondary Education (CBSE)
Dheeran Chinnamalai International Residential School
Score: 96.7%

EXPERIENCE

Machine Learning Research Intern
Beatly Digital Ltd. (MedTech AI Company)
March 2025 – Present

- Working on Continuous Non-Invasive Blood Pressure (CNIBP) estimation using ECG and PPG biosignals.
- Developed deep learning and signal-processing-based models for wrist-based PPG (wearables) and chest-based PPG (electronic patches).
- Trained and evaluated models using open clinical datasets (MIMIC, VitalDB) and real hospital data.
- Built end-to-end pipelines for SBP, DBP, and MAP prediction; evaluated using MAE, RMSE, and correlation metrics.
- Focused on deployment-ready and hardware-efficient models suitable for real-world medical devices.

Research Assistant (Remote)
Jadavpur University
Supervisor: Prof. Ram Sarkar
August 2025 – Present

- Designed a deeply supervised lightweight neural network for skin lesion segmentation emphasizing efficiency and cross-dataset generalization.
- Trained on ISIC-2017 and evaluated on ISIC-2016, ISIC-2018, and PH2 datasets.
- Achieved strong segmentation performance with $\sim$0.5M parameters and $\sim$1.1 GFLOPs, enabling edge deployment.
- Currently working on deep learning approaches for copy-move forgery localization.

Research Assistant – Medical Imaging
SRM Institute of Science and Technology
(In collaboration with SIMS Hospital)
January 2026 – Present

- Working on X-ray Coronary Angiography (XCA) image analysis for clinical decision support.
- Performing coronary vessel segmentation and anatomical labeling (LCA, LCX, OM, etc.) following clinical syntax conventions.

- Developing deep learning pipelines (U-Net, YOLO-based models) using ARCADE and hospital-provided datasets.
- Exploring stenosis detection and percentage quantification for downstream clinical interpretation.

RESEARCH & PUBLICATIONS

- **D-SUPRANet: A Deeply Supervised Progressive Refinement Attention Network for Skin Lesion Segmentation**.
  Engineering Applications of Artificial Intelligence, Elsevier.
  Status: Under review (submitted December 2025).

TECHNICAL SKILLS

- **Programming:** Python, JavaScript
- **Machine Learning & AI:** PyTorch, CNNs, U-Net, YOLO, Deep Supervision
- **Medical AI:** ECG & PPG Signal Processing, Medical Image Segmentation
- **Data & Cloud:** NumPy, Pandas, Databases, AWS
- **Tools:** Git, GitHub, Linux

ACHIEVEMENTS

- Department Topper for two consecutive academic years.
- Recipient of Merit-based Academic Excellence Scholarship.
- Winner – First Prize, Gameathon Hackathon, for developing a gamified AI-based application for critical-thinking and decision-making practice.

RELEVANT COURSEWORK

- Machine Learning for Data Analytics
- Artificial Intelligence
- Probability and Statistics
- Calculus and Linear Algebra
- Advanced Calculus and Complex Analysis
- Discrete Mathematics
- Data Structures and Algorithms
- Design and Analysis of Algorithms
- Database Management Systems
- Operating Systems
- Wearable Technology
- Introduction to Computational Biology