

Jetson Orin Nano Setup and Edge AI Applications in Healthcare

Workshop Structure (2 Days / 3 Sessions Per Day)

Day 1: Fundamentals & Model Training (Google Colab)

Time	Session	Content Summary	Learning Outcome
9:00 AM – 11:10 AM	Session 1: Introduction to Edge AI & Linux Basics	Why Edge AI in healthcare (latency, privacy, offline)- NVIDIA Jetson family overview- Linux essentials (commands, navigation)- Introduction to containerization	Participants understand Edge AI concepts, Jetson role, and Linux fundamentals
11:15 AM – 1:15 PM	Session 2: NVIDIA JetPack & AI Frameworks	- JetPack SDK (CUDA, cuDNN, TensorRT)- Supported frameworks (TensorFlow, PyTorch, ONNX)- Model portability with ONNX- Containerization	Participants learn Jetson software ecosystem and AI framework support
2:00 PM – 4:00 PM	Session 3: Training a Simple CNN on Google	- Chest X-Ray dataset intro- Training a CNN with TensorFlow- Evaluating accuracy- Exporting to ONNX & testing	Participants gain hands-on model training & ONNX conversion skills

Day 2: Deployment & Demonstration (Jetson Orin Nano)			
Time	Session	Content Summary	Learning Outcome
9:00 AM – 11:10 AM	Session 4: Getting Started with Jetson Orin Nano	- Jetson hardware setup & peripherals- JetPack SDK environment- Linux commands on Jetson- Transferring ONNX model	Participants can navigate Jetson environment & prepare for deployment
11:15 AM – 1:15 PM	Session 5: Deploying Pneumonia	- Install ONNX Runtime & OpenCV- Preprocess chest X-ray images- Run inference on Jetson- Compare predictions with Colab	Participants learn model deployment and real-time inference workflow
2:00 PM – 4:00 PM	Session 6: Real-time Object Detection + Cloud vs Edge Comparison	- Deploy YOLO/SSD object detection model on Jetson- Live demo with camera (OpenCV + Ultralytics)- Compare Colab vs Jetson results (latency, cost, privacy)- Discussion: Future scope in healthcare AI	Participants experience real-time object detection & appreciate cloud vs edge trade-offs

