

Edge AI (Vision & Speech on Jetson)

◆ MONTH 1 — Vision Foundations

Week 1: Jetson Setup & Linux

- **JetPack environment**
- **Camera interfacing**

Week 2: OpenCV Basics

- **Image processing**
- **Filtering & transformations**

Week 3: Real-Time Video Pipeline

- **Frame capture**
- **Live processing**

Week 4 – PHASE PROJECT

Motion Detection & Tracking System

◆ MONTH 2 — Deep Learning for Vision

Week 5: Object Detection Concepts

- **CNN basics**
- **Pre-trained models**

Week 6: YOLO Implementation

- **Real-time inference**
- **Performance tuning**

Week 7: TensorRT Optimization

- **Model acceleration**

Week 8 – PHASE PROJECT

Real-Time Object Detection System

◆ **MONTH 3 — Speech AI & System Integration**

Week 9: Speech Recognition Basics

- **Audio preprocessing**

Week 10: Whisper Deployment

- **Local inference on Jetson**

Week 11: AI-Based Automation Triggers

- **Vision + Speech integration**

Week 12 – FINAL CAPSTONE

🎯 **Smart AI Edge Device (Vision + Voice Controlled System)**