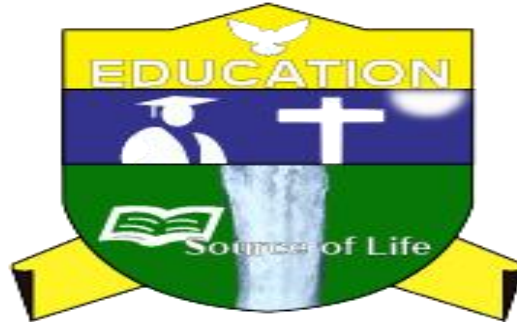


RUAHA CATHOLIC UNIVERSITY

(RUCU)



FACULTY OF INFORMATION AND COMMUNICATION TECHNOLOGY.

DEPARTMENT OF COMPUTER SCIENCE

COURSE CODE: RMS 311

COURSE NAME: RESEARCH METHODS

SUPERVISOR NAME: TUMAIN EDGAR

SUBMITTED DATE: 12 December 2025

S/N	NAME	REG NUMBER
1	GIDION RUWAICH JACKSON	RU/BSCSE/2023/169

MOBILENET: EFFICIENT CONVOLUTIONAL NEURAL NETWORKS FOR MOBILE VISION APPLICATIONS

1. INTRODUCTION

The paper introduces **MobileNet**, a lightweight neural network designed for mobile and embedded devices. Traditional deep networks are too large and slow for mobile use. MobileNet solves this by using **depthwise separable convolutions**, which reduce computation and make deep learning models faster and smaller while maintaining good accuracy.

2. PAPER NAME & AUTHORS

Title: *MobileNet: Efficient Convolutional Neural Networks for Mobile Vision Applications*

Authors: Andrew G. Howard, Menglong Zhu, Bo Chen, Dmitry Kalenichenko, et al.

3. PROBLEM STATEMENT

Deep learning models require large memory and heavy computation, making them unsuitable for smartphones and low-power devices. There is a need for a model that is **small, fast, and efficient** while still performing well in vision tasks.

4. OBJECTIVES

Main Objective

To develop an **efficient deep learning model** suitable for mobile and embedded vision applications.

Specific Objectives

1. To design a lightweight CNN using depth wise separable convolutions.
2. To maintain high accuracy despite using fewer parameters.
3. To improve performance on mobile devices.
4. To demonstrate competitive results on major vision tasks.

5. RESEARCH GAP

Previous neural networks were too large and computationally expensive for mobile devices. No small and efficient architecture existed that maintained good accuracy. MobileNet fills this gap with a model optimized specifically for **speed, size, and mobile performance**.