

# Safety Helmet Wearing Detection Model Based on Improved YOLO-M

**Dr. Kavita K. Patil<sup>1</sup>, Chelluru Sri Arya<sup>2</sup>, Dhanush Kumar L<sup>3</sup>, Srujan R<sup>4</sup>, Karibasavaraju B<sup>5</sup>**

Associate Professor, Dept. of Information Science and Engineering<sup>1</sup>

Students, Dept. of Information Science and Engineering<sup>2,3,4,5</sup>

Global Academy of Technology, Bengaluru, Karnataka, India

aryachelluru@gmail.com, dhanushkl0411@gmail.com

srujanraj661@gmail.com, lga21is078karibasavarajub@gmail.com

**Abstract:** *There are cutting-edge employee safety precautions to be implemented in building constructions. Through the help of computer vision algorithms, an intelligent safety helmet recognition system monitors all things and ensures that everybody conforms to regulations in real-time. We study whether YOLOv5s, YOLOv5- YOLO M, SSD, RetinaNet, FasterRCNN, YOLOv3, YOLOv4, YOLOv5-GhostCNN, or YOLOv8 accurately recognize objects. For the sake of evaluating their applicability to construction safety compliance applications, we measure their efficiency, accuracy, and computational needs. The project leaders responsible for the site safety and the construction crew members working on the site's premises will benefit the most from enhanced monitoring and resource allocation. With promising increases to occupational safety, initial results prove that YOLOv5 - GhostCNN is able to obtain mean Average Precision (mAP) higher than 97%. Results of the research assist in applying safety procedures and reducing accidents in construction sites*

**Keywords:** Attention mechanism, feature fusion, safety helmet, YOLOv5s model

