# WOOSONG UNIVERSITY AI & BIG DATA

# IMAGE CLASSIFICATION FOR FORENSICS

**Team: CLASSIFIERS**
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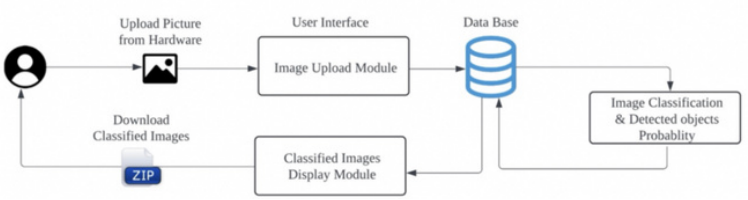
**Participating firm: GMDSOFT**

The system is designed to classify forensic images using YOLOv8. Classifying images into 11 categories: rifle, pistol, balaclava, drugs, smoking, banknotes, blood pattern, knife, bat, fire and other.

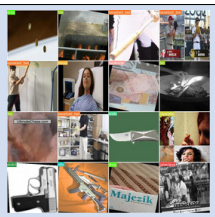

## Motivation for Development

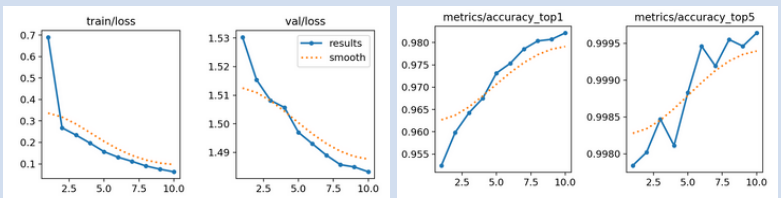
- **Enhancing Forensic Efficiency:** Automating image classification to save time and reduce manual errors
- **Streamlining forensic workflows for quicker evidence processing**
- **Supporting Law Enforcement:** Providing reliable data to aid in crime detection and prevention
- **Improving the overall effectiveness of forensic investigations**




## Research Result 1. 98% Accuracy Result

| Model (YOLOv8s-cls.pt) | AI Model Performance |
|---|---|

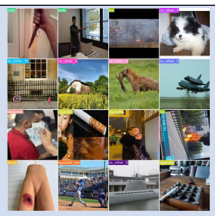


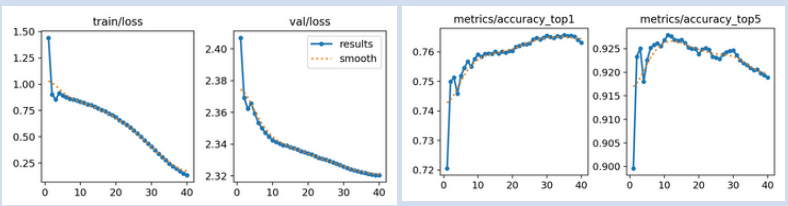



- **10 main classes (rifle, pistol, balaclava, drug, cigarette, banknote, blood pattern, knife, baseball bat, fire)**
- **Accuracy: 98%**
- **Dataset: ~6,200 images each class**

## Research Result 1. 76% Accuracy Result

| Model (YOLOv8l-cls.pt) | AI Model Performance |
|---|---|






- **10 main classes ~6,200 images + 10 “other” classes ~2,200 - 4,500 images each “other” classes**
- **Accuracy: 76%**

## Expected Outcome

- **Model v1 accuracy: 98%**
- **Model v2 accuracy: 76%**
- **Fully functioning web application that allows sign up then see and download classified images**
- **Web application provide 2 different model and user can choose output by their performance**
- **User-friendly UI-UX that provides separated folders with images by classified class**