



Pratya Nuankaew <nuankaew.p@gmail.com>

8th International Conference on Smart Computing and Informatics : Submission (185) has been created.

1 message

Microsoft CMT <noreply@msr-cmt.org>
To: pratya.nu@up.ac.th

Fri, Jan 30, 2026 at 11:47 PM

Hello,

The following submission has been created.

Track Name: SCI2026

Paper ID: 185

Paper Title: Data-Centric Fine-Tuning for Robust Banana Detection Using YOLO-Based Deep Learning

Abstract:

This research presents a method for detecting and classifying Thai banana varieties from photographic images displayed on a monitor. It addresses real-world applications often affected by noise from lighting and background conditions. YOLO models (YOLOv8s, YOLOv9s, and YOLOv10s) were fine-tuned to classify 10 classes, including background, and were evaluated using metrics such as precision, recall, mAP50-95, validation loss, training time, and the optimal epoch. Error patterns were analyzed with confusion matrix analysis. Experimental results showed high model accuracy and minimal cross-varietal confusion. The main error involved predicting background images that resembled bananas as bananas. Numerical comparisons revealed that YOLOv8s had the lowest loss (0.097), whereas YOLOv9s achieved the same mAP50-95 (0.989) and required less training time, making it a suitable alternative. Additionally, a two-stage web-based prototype was developed and tested in a real-world setting. The results confirmed its practical applicability and suggested ways to reduce false positives by adding hard negatives and adjusting the decision threshold.

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Authors:

- wongpanya.nu@up.ac.th
- phichayapa.ph@up.ac.th
- khemjira.pr@up.ac.th
- chanakan.ch@up.ac.th
- thapanapong.sa@up.ac.th
- pratya.nu@up.ac.th (Primary)

Secondary Subject Areas: Not Entered

Submission Files:

[SCI_2026_04_PID_xxx@sciconf.co](#) (001) - Submission File [2026-01-29] - no author.pdf (634 Kb, Fri, 30 Jan 2026 16:29:57 GMT)

Submission Questions Response: Not Entered

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[Redmond, WA 98052](#)