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Paper 1166 summary

1 message

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Here is submission summary.

Track Name: ICDSA2025

Paper ID: 1166

Paper Title: Evaluating Multimodal Fusion Strategies for Resilient Agricultural Sensing Systems

Abstract:
This paper examines three multimodal data fusion techniques
Multimodal Data Fusion-based Graph Contrastive Learning (MDFCL),
Graph-Structured & Interlaced-Masked Fusion Network (GSIFN), and
Perceiver IO—on agricultural time-series data. MDFCL builds individual
graphs for each modality and applies unsupervised contrastive losses to
align the embeddings of nodes, inducing cross-modal robustness. GSIFN
develops an interlaced masking joint Transformer, capturing higher-order
interactions with efficiency, along with self-supervised LSTM-based side
tasks to counter redundancy. Perceiver IO adopts an implicit-latent bottleneck Transformer, providing
heterogeneous streams of agricultural
data flexibly with near-linear complexity without individual encoders
per modality. Although these models have been found to be successful
with generic multimodal tasks, their applicability to fusion of agro-sensor
and growth-image data has thus far remained relatively less explored. We
evaluate their adaptation versatility, advantages, and limitations in this
study, providing actionable recommendations on fusion of agricultural
image and time-series data to support precision agriculture with robustness, scalability, and
efficiency.

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Submission Questions Response:
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   Author 1 (Ponnuri Aniruddha) - Model Training and testing
Author 2 (Abhay Shaji Valiyaparambil)-Data Collection and Database Setup
Author 3 (Sornalakshmi K) - Documentation Review, Problem Statement Formulation, Experimental Setup

Thanks,
CMT Team.