SEIS 764: Artificial Intelligence
University of St. Thomas

Name: Khongmeng Kormoua

St. Thomas ID: 101323019

Literature Review

Title: MAU-GPT: Enhancing Multi-type Industrial Anomaly Understanding via Anomaly-aware and Generalist Experts Adaptation.
https://arxiv.org/abs/2602.07011

Summary: "MAU-GPT proposes a hybrid framework for industrial anomaly understanding that combines specialized "anomaly-aware" experts with broad, foundation-model "generalist" experts to better detect and interpret diverse defect types. The anomaly-aware components focus on capturing fine-grained, subtle defect patterns (such as texture or structural irregularities), while the generalist experts—adapted from large pre-trained models—provide strong semantic reasoning and cross-domain generalization. Through an adaptive fusion mechanism, the model balances local defect sensitivity with global contextual understanding, improving robustness and performance across multiple industrial anomaly categories, especially in scenarios with limited or imbalanced data."
Generated by ChatGPT on 2/13/2026

This topic caught my attention because I previously tried to work on an AI model that can give a dimension of an object by captured image of the object. However, in a precise mechanical part with tight tolerance range that requires Vision Measurement Machine (VMM) as a standard, simple models such as YOLO-variant are not reliable enough. Although MAU-GPT is not meant to fix this problem specifically, but in industry where something needs to be treated differently or more detail is more important than in general case while not overfitting a model into a problem at the same time is exactly what MAU-GPT is trying to address.

This idea of taking general AI model and adapting into a specific domain is not new by any means. We have years of doing so such as fine-tuning imageNet for medical area, adapting GPT model for medical, coding. But the approach of in-corporate two or more different models and find a way to fuse them together. Essentially, became a team. This concept has great potential as it works toward modular AI system, Scalability and many more.