Large Language Models for Failure Mode Classification: An Investigation

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Large Language Models (LLMs) have received a surge of interest recently due to their ability to encapsulate knowledge from a variety of domains. However, research has yet to explore the applicability of LLMs to maintenance. In this presentation, Michael will provide details on his investigation into using LLMs to perform Failure Mode Classification (FMC), a critical maintenance task that reduces the need for reliability engineers to spend their time manually analysing work orders.

Michael will demonstrate his prompt engineering approach that enables fine-tuning an LLM (GPT-3.5) to predict a nominal failure mode code from a given observation. He will show that the LLM-based model outperforms a state-of-the-art text classification model, but only when the LLM is fine-tuned. Michael's investigation reinforces the need for high quality fine-tuning datasets for maintenance-specific tasks using LLMs.