AI-Powered LLM for Semiconductor Knowledge Sharing

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Abstract:

Semiconductor manufacturing requires fast and reliable knowledge transfer to prepare new employees for complex workflows, specialized equipment operation, and strict facility standards. However, conventional training materials such as presentations, manuals, and internal guidelines are often static, lengthy, and difficult to navigate, leaving new employees feeling overwhelmed and unable to efficiently find or understand key information. As seen in existing training workflows, the absence of interactive support forces new employees to repeatedly seek clarification from senior engineers, creating a time-consuming feedback loop that reduces training scalability and productivity.

To address these limitations, this talk will focus on presenting an AI-powered large language model (LLM) for semiconductor trainee education using RAG-grounded corporate training materials. This system combines a LLM with a retrieval-augmented generation (RAG) pipeline to ensure that every answer is both linguistically coherent and strictly grounded in the company's internal documents. The LLM enables natural, context-aware dialogue, while the RAG mechanism retrieves authoritative content from training resources such as manuals, guidelines, and presentation files. The system aims to streamline the onboarding process, improve comprehension of complex technical concepts, and establish a scalable and intelligent digital knowledge support mechanism for semiconductor organizations.