

Towards AI-Generated Database Management Systems (Keynote Talk)

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Abstract

Recently, a new generation of large language models (LLMs), combined with powerful frameworks such as Claude Code, has made it practical to generate large code bases in low-level programming languages such as C and C++. In my talk, I will discuss several recent and ongoing projects in the Cornell Database Group, aimed at leveraging LLMs for synthesizing highly efficient code for data processing. In particular, I will focus on GenDB, a multi-agent system that generates code for processing complex SQL queries that is specialized to the particularities of the target database, workload, and hardware. The resulting code often outperforms a variety of classical database systems by significant margins. I will conclude my talk by discussing open problems and avenues for future work.

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Speaker Biography: Immanuel Trummer is an associate professor of computer science at Cornell University. His research focuses on making data analysis more efficient and more user-friendly, in particular by the use of large language models. His papers were selected for “Best of VLDB”, “Best of SIGMOD”, and the CACM Research Highlight Award. He received an NSF CAREER grant for his work on database tuning via LLMs and multiple Google Faculty Research Awards. He is also the author of the book “Data Analysis with LLMs”, now available in five languages.

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