

Software Engineer is not developing alone any more !

Most software experts agree that large language models (LLMs), such as those used by Copilot and ChatGPT, are expected to revolutionize the way in which software is developed. Many existing work are currently advocating the potential advantages generative AI models for writing code. However, the analysis of the current state of LLMs with respect to software modelling has received little attention. In our previous CIMI IBCO (2021-2024) project, we suggested a new method for AI-guided software modelling. Our results have been shown very promising with valuable insights for software engineering. However, we noticed that, currently, there are several LLMs limitations which must be rigorously addressed in order to efficiently apply generative AI models for software modelling. Our findings show that, in contrast to code generation, the performance of the current versions of LLMs are missing specific domain awareness, with various syntactic and semantic deficiencies, lack of training on specific knowledge, consistency in responses (hallucination), and scalability issues. This call seeks to overcome those limitations so that generative AI can be invaluable for software modelling. To do so, we are interested in studying how current limitations can be fixed with a particular focus on hybrid LLMs that are driven by both data and specific domains. The results would highly impact MBSE (Modelling Based Software Engineering).

For detailed informations about this work or if you have any question to help you making your choice, you can contact : **meriem.ouederni@toulouse-inp.fr**