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Transcription of audio interview with Mathieu Acher (DiverSE)

Better AI for code development

Inria Centre at Rennes University
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My name is Mathieu Acher, I'm an Inria researcher in the Diverse team, and I specialize in software science and a little bit in artificial intelligence. I'm co-leader of the Inria LLM4Code challenge, which stands for Large Language Model for code and programming.

An Inria challenge is a group of teams that come together around a theme, each bringing their own specific expertise to the table, in the hope that the combination of our expertise will lead to the emergence of some very interesting things. So, for the time being, it's about how we can use LLMs for code, and we need people who are very strong in AI, software, code and formal methods, because LLMs are sometimes fickle.

Generative AI has exploded since 2020, let's say, with ChatGPT in particular, which I think has had the biggest impact on the general public. Basically, these are tools for completing text, so use cases tend to be answering questions, translating English into French, making summaries and so on. But if you think about it, the code, the software, is also text. Admittedly, structured in a specific way with languages that are a little different from English and Russian and Chinese, but there's a very clear link and so it's intriguing to know whether LLMs are as good at code as they are at text in general.

There are lots of people who program, not just developers, but also scientists, or perhaps you in your association, to build your website or your applications. Software development can be extremely complex. You can manipulate hundreds, thousands, even millions of lines of code. You can write code that doesn't work, that contains bugs, that consumes too much energy, in which there are security problems. So we're hoping that LLMs won't replace us, but will assist us by suggesting portions of code, interesting translations into other languages or helping us to debug if there's an error.

The idea is to equip developers with a somewhat magical tool that they can control, so that they can be both more productive and faster in their development tasks, because writing code takes time. At the same time, the code proposed by the LLM must not be unreliable, i.e. contain security flaws or cause the system to crash. Ultimately, we want wizards in which there is real interaction between the developer and generative AIs to augment human intelligence and manage to write safer code more quickly.

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