



Vadim Zaytsev has been associate professor of Software Evolution at the University of Twente since July 2020. Before that, he worked as Chief Science Officer at Raincode Labs. In the past, he was a lecturer at the University of Amsterdam, postdoc at CWI and a researcher at the University of Koblenz-Landau. He gained his PhD from VU Amsterdam and completed his degree in Applied Mathematics and Computer Science at the Southern Federal University in Russia.

AVERTING THE SECOND SOFTWARE CRISIS

By Reineke Maschhaupt Image Ivar Pel

According to associate professor Vadim Zaytsev, we need to act now to solve the second software crisis. Zaytsev: 'If we only train software engineers who are used to using fun tools and languages, we will have beautiful websites and apps in a few years' time, but the backend will fall apart.'

'I spent four years working for a company that helped other companies with legacy problems in order to understand the legacy problem from the inside out. This experience taught me that there are fundamental problems, which the industry will not be able to solve itself. Solutions will have to be provided by the universities. However, university education does not currently devote enough attention to this. I returned to the academic world because I can exert more influence on the curriculum from the inside.

The first software crisis arose in the 1960s. At that time, programmers reached a point of complexity that they could no longer solve. The discipline of software engineering arose in answer to this crisis. These days, our problem is that the latest generation of software engineers is highly trained in constructing software and learning fun new programming languages, but no longer knows how to deal with the old, existing systems. We are heading towards a second software crisis.'

COCKTAIL OF OLD LANGUAGES

'Half of all the major banks run on programming languages from the 1960s, such as COBOL or PL/I. They have gigantic code bases of hundreds of millions of lines of code with a cocktail of five to ten different languages. Students no longer learn most of those languages. According to the latest statistics, there is an eighty or ninety percent chance that the use of your bank card depends on COBOL running in the background. If there is nobody to keep that system alive then, eventually, your bank card will stop working.

I think that we can solve the second software crisis. At the end of the 1990s, we also managed to solve the Y2K problem (Millennium bug, ed.) because people raised the alarm on time. We need to create awareness in education and teach more of the other techniques that we know, not in small projects but systematically. We need to produce more experts who are not afraid to work with complexity and old languages. In addition, we must continue to do a lot of research into new techniques.

In the future, I want to continue teaching at the university, but I also want to work together with industry. That would be my sweet spot. Then I can witness how a new generation of people grows up, and I'd be able to change things if I feel that a different approach is needed.'