Forschungspersönlichkeiten
Prominent Researchers

Selin Coban
Die KI-Werkzeugschmiedin

Die Fortschritte neuer KI-Systeme sind der (sprichwörtliche) Hammer. Notwendige Werkzeuge dazu sind das Metier der Informatikerin Selin Coban. Coban ist wissenschaftliche Mitarbeiterin der Forschungsgruppe Software Construction von Professor Horst Lichter, sie modelliert Prozesse und entwickelt Werkzeuge beziehungsweise eine Toolbox als Unterstützung für die Entwicklung neuer Systeme. Das Ganze nennt sich Software Engineering für Maschinelles Lernen (Machine Learning) und ist auch in einer zunehmend digitalisierten Welt ein Feld, in dem viel Raum für Fortschritt und damit Forschung bleibt.

Selin Coban
The AI Toolsmith

The advancement of AI systems is truly mind-blowing. Computer scientist Selin Coban specializes in developing the essential tools driving this progress. Coban works as a research associate in Professor Horst Lichter's Software Construction research group, where she models processes and develops a toolbox that supports the creation of new systems. Her field – software engineering for machine learning – offers abundant opportunities for research and progress in an increasingly digital world.

"In the world of code, we can do things that are impossible in the physical world."

What does this mean in practice? Imagine a craftsperson building a chair: ideally, they have the right tools and understand the processes – essentially following a manual for individual work steps. When developers create new software, the process is far less standardized, but they still need tools and methodologies to guide them from initial prototyping to a functioning system. One of Coban's key research for better prototyping approaches centers on "snapshots". Prototypes are often available only in their final form, with little trace of how they were created or what insights emerged during the development process.

Using tools she developed herself, Coban systematically records and documents each developmental step, making both the development process and the resulting prototype easier to understand. "Currently, too much knowledge is still being lost," she explains. The consequences are significant: according to Coban, surveys indicate that 80 percent of new AI projects fail because they don't incorporate software engineering principles.

Recognizing this challenge, software engineering for AI has emerged as a rapidly growing research field – one to which Coban has contributed numerous publications. Her approaches are highly interdisciplinary, with applications branching into various domains – including the analysis of X-ray images. "Human-computer interaction is also crucial in this context," Coban notes.

Born in 1995, Coban began her journey toward computer science in her childhood bedroom. She had a computer – in her mind, a "magic box" – that she eagerly explored. Her second passion was traditional, analog logic puzzles. Today, she sees both of these interests come together in computer science, which continues to fuel her enthusiasm. Coban actively shares her passion with students, working closely with them as both a coordinator for the University's computer science bridge course and an advisor for international students.

"Computer science offers so many exciting dimensions. In the world of code, we can do things that are impossible in the physical world. For instance, we can time travel – in programming, we can always return to an earlier point and start over," she explains. She particularly focuses on inspiring young women in the field. Together with fellow scholars, she founded the 'Women in AI' initiative at RWTH and participates in the 'Not a Token Woman' campaign, fighting gender discrimination. Gender bias, she points out, is already embedded in our data – and even in our furniture: the standard Bauhaus chair was designed specifically for male bodies.