Title: Programming in Plain Language: Preparing Novice Programmers for the Era of Human–GenAI Collaborative Coding

Date & Time: 14th January 2026, 2 PM – 3 PM

Venue: RM101

Abstract:

The rise of GenAI and GenAI programming assistants is, in many ways, redefining what it means to program. This is, in turn, causing a great period of reflection on what skills we should be equipping novice programmers with in order to be successful—particularly in introductory courses. In the past, these courses focused on syntax mastery and equipping students with the ability to write code, typically beginning with individual functions and ending with small programs, from scratch. However, as these GenAI assistants are now able to generate whole programs from natural language descriptions, many are suggesting we should be shifting towards emphasizing skills such as problem decomposition, specification, testing, code comprehension and prompting.

In this talk David will cover the current conversations, pedagogy, and state-of-the-art tools that are shaping how programming is being redefined in the era of GenAI, highlighting both the promises and risks of this transformation. He will then share his research on enabling scalable, formative practice in two core areas that are becoming increasingly essential: code comprehension and prompting. A central focus here is the "Explain in Plain English" (EiPE) question, a long-standing novice programming problem where students are asked to describe, in natural language, what a given piece of code does. By leveraging large language models, David has explored ways to enable autograding of EiPE tasks by transforming student responses back into code for automated evaluation, thus providing immediate and actionable feedback to students in formative environments. Finally, he will discuss his current and future work on "natural language programming" in linguistically diverse environments.

Bio:

David Smith is an assistant professor at Virginia Tech who does research at the intersection of Computing Education and Human-Computer Interaction. He received his PhD at the University of Illinois Urbana-Champaign in 2025 in the Computers and Education research group. Broadly, his work focuses on how learners acquire

programming skills and how computer-based assessment, automated feedback, and new technologies can be designed to better support that process, particularly at scale. HIs most recent work explores how generative AI is reshaping programming practice with a focus on the skills novice programmers need to acquire and how these skills can also be assessed at scale.