Title: Should Programming Pedagogy and Assessment Change in Response to Advances in Generative AI?

Date & Time: 11 AM, June 30, 2023

Venue: RM-101 Dept of CSE

Abstract:

A core objective in most computing curricula is to develop the ability of students to write correct, maintainable, and efficient code for certain tasks. The complexity of these tasks gradually increases from Introductory to Advanced programming courses. With breakthroughs in Generative AI techniques based on Foundation Models (also known as Large-Language Models), tools such as ChatGPT, Codeium, CodeWhisperer, Copilot, Ghostwriter, and Tabnine can now solve non-trivial code-writing tasks better than most students. Many of these tools are freely available.

This talk examines the following question: Does the proliferation of such tools demand changes to pedagogy and assessment for programming courses? If no changes are made, students may use such tools indiscriminately for short-term benefits (good grades) while failing to develop their code-writing abilities. Further, as such tools are increasingly integrated into professional software development contexts, banning their usage entirely may leave students ill-prepared for their professional careers. Instead, we argue for thoughtfully adapting pedagogy and assessment for programming courses and then explicitly introducing students to such tools.

About the Speaker:

Viraj Kumar is a Visiting Professor at the Kotak IISc AI ML Centre at IISc Bangalore. After completing his PhD in Computer Science from UIUC in 2007, his research has focused on Computer Science Education, with emphasis on challenges in the Indian higher education context. Viraj is an elected member of the ACM India Council and chairs its Education Committee. He is the Chair of ACM India's COMPUTE'23 conference on CS Education. He also serves on the steering committee of IIIT Delhi's CSEDU programme, where he offers a Training Programme for CS Faculty jointly with Prof Vikram Goyal (IIIT Delhi) and Prof Amey Karkare (IIT Kanpur). Previously, Viraj served as a consultant to the Kasturirangan Committee to draft the National Education Policy (NEP 2020), and to the Ministry of Education's committee to frame the National Curricular Frameworks. Viraj's current research focuses on understanding the implications of large language models on programming courses, and he has recently completed an NPTEL Workshop on this topic.