



**Trinity College Dublin**

Coláiste na Tríonóide, Baile Átha Cliath

The University of Dublin

## **Designing Generative AI Coding Assistants to Promote Learning Arising from Programming Activities**

Funded 4-Year PhD Position

School of Computer Science and Statistics

Trinity College Dublin

<https://www.scss.tcd.ie/>

Fine-tuned for computer programming tasks, generative AI coding assistants, of which *GitHub Copilot* is a well-known example, can suggest next blocks of code in a program, find and correct errors, explain and answer questions about programs and create partial or complete programs from scratch when given a natural language prompt. Although imperfect, the capabilities demonstrated by AI coding assistants have prompted widespread discussion and debate about the future of computer programming education and even the future of programming itself [1] [2].

There is an emerging concern that using AI coding assistants can negatively affect learning that occurs during programming activities, whether in educational, informal, or professional settings.

The successful candidate for this position will explore how future AI coding assistants might be designed to promote learning, while also recognising that the nature of computer programming is changing. The project will draw inspiration from – and contribute to – the growing body of literature exploring the effects of generative AI and coding assistants on learning by programmers. Central to the project will be the design, implementation and evaluation of technical innovations in the implementation of AI coding assistants to promote learning.

This funded 4-year position includes:

- an annual stipend of €22,000 (for 4 years), and
- fees to pursue a PhD in Computer Science (for 4 years, at the [fee level charged to EU students](#)).

Candidates should have a bachelor's degree (minimum II.1 honours grade or equivalent) in computer science, computer engineering or a closely related discipline. A master's degree or similar experience with machine learning, or more specifically generative AI, would be an advantage. Candidates should also have an interest in the development of programming knowledge and skills in either informal learning settings or through formal education. Candidates should be self-motivated and have a proven ability to work independently and as part of a team.

The successful candidate will join the [structured PhD programme](#) in the School of Computer Science and Statistics at Trinity College Dublin, working with a vibrant community of over 150 PhD students. TCD is the top-ranked institution in Ireland and one of the leading institutions in Europe for the study of computer science.

### **Application Instructions**

Please submit a single PDF document including (i) a cover letter (one page) addressing your motivation for applying for the position and how your qualifications, experience and background would make you a suitable candidate (ii) your curriculum vitae and (iii) the names and contact details of two referees.

**Applications and informal queries about the position can be submitted to Jonathan Dukes ([jdukes@tcd.ie](mailto:jdukes@tcd.ie)) or Goetz Botterweck ([botterwg@tcd.ie](mailto:botterwg@tcd.ie)). Suitably qualified applicants will be interviewed on a rolling basis, with a deadline of 31 January for applicants who wish to begin before September 2025.**

[1] M. Welsh, "The End of Programming," *Communications of the ACM*, vol. 66, no. 1, pp. 34-35, January 2023.

[2] D. M. Yellin, "The Premature Obituary of Programming," *Communications of the ACM*, vol. 66, no. 2, pp. 41-44, February 2023.