

6th International Computer Programming Education Conference

ICPEC 2025, July 10–11, 2025, PORTIC, Polytechnic of Porto,
Portugal

Edited by

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Preface

ICPEC 2025, the 6th International Computer Programming Education Conference, took place on July 10 and 11 at PORTIC – Porto Research, Technology & Innovation Center, a dynamic space dedicated to innovation, research, and technological development within the Polytechnic Institute of Porto (P.PORTO), Portugal.

This edition maintained the conference’s collaborative spirit, gathering educators, researchers, and professionals from diverse backgrounds to reflect on contemporary transformations in programming education. In an era when the use of Artificial Intelligence is rapidly expanding, the sixth edition introduced a novel format that captured everyone’s interest – a roundtable discussion entitled “The Role of the Programming Teacher in the Age of Artificial Intelligence”. Bringing together five esteemed academics from leading Portuguese institutions – FCUP, FEUP, ISCTE, ISEP, and UM – the session set out to explore how the presence of Artificial Intelligence is reshaping the educational landscape. The discussion centered on the evolving role of the programming teacher, questioning what aspects of the profession remain fundamental, what needs to be re-imagined, and in what ways educators can actively guide future developers in a context increasingly influenced by intelligent systems. It was a rich conversation, offering multiple perspectives on the responsibilities faced by those who teach programming today.

The scientific programme featured twenty peer-reviewed papers, presented across five thematic sessions that addressed areas such as the foundations of programming education, the use of generative AI to support teaching and learning, gamified and immersive engagement strategies, secure coding and technical skill development, and approaches to assessment, feedback, and learning analytics.

We are deeply grateful to the members of the Program Committee for their thoughtful reviews and to all participants for their insightful contributions, generous dialogue, and commitment to advancing the field. ICPEC continues to thrive thanks to the openness and shared purpose of its community. We would like also to express our sincere gratitude to the local organizing team at PORTIC for their dedication, efficiency, and warm hospitality, which made the conference run smoothly and created such a welcoming environment for all participants. Our thanks also extend to OASICs for their invaluable support in the publication and dissemination of the conference proceedings, ensuring that the work shared here reaches a broader academic and professional audience.

In an age shaped by Artificial Intelligence, teaching programming is no longer just about code – it’s about preparing ethical, creative, and critical thinkers. The ICPEC community stands at the heart of this transformation. Together, we’re not simply adapting to change, we’re rethinking what it means to teach programming in a world where machines can also learn, reason, and generate. Our role is clear: to ensure programming education remains relevant, inclusive, and human-centred. In doing so, we don’t just keep pace with technology – we guide it with purpose.

Porto, 31 July 2025

Ricardo Queirós, Mário Pinto, Filipe Portela and Alberto Simões

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