

Preface

Welcome to the proceedings of the 8th International Symposium on End-User Development (IS-EUD 2021), organized by the University of Cyprus and held virtually during July 6–8, 2021. End-user development (EUD) aims at empowering end users to develop and adapt systems at a level of complexity that is adequate to their expertise, practices, and skills. EUD may occur along the entire software lifecycle, with the purpose of making users able to participate in artifact development, not only during the design phase but also during actual use. Originally, EUD was conceived as a more general instance of end-user programming; thus, scholars proposed methods, techniques, and tools that allowed end users to modify or extend software artifacts, such as spreadsheets, web applications, video games, and mobile applications. In the so-called Internet of Things era, end-user development moved on to address the problem of defining and modifying the behavior of smart environments, including smart objects, pervasive displays, smart homes, smart cities, and so on. Therefore, the term ‘end-user development’ has acquired a broader meaning, covering approaches, frameworks, and socio-technical environments that allow end users to express themselves in crafting digital artifacts that encompass both software and hardware technology. Recent research and technological trends like Artificial Intelligence (AI), big data, cyber-security, robotics, and Industry 4.0, have contributed to a renewed vision of end-user development, by providing tools and platforms that allow end users to harness the power of AI to create solutions involving computer vision, image processing, and conversational user interfaces, as well as solutions for smart environments. Such developments lower the threshold for creating AI solutions, and expand the programmer base for such solutions, by extending AI application both for professional and discretionary use.

IS-EUD is a bi-annual event for researchers and practitioners with an interdisciplinary approach to EUD, including Human-Computer Interaction, Software Engineering, Computer Supported Cooperative Work, Human-Work Interaction Design, and related areas.

The 2021 edition of IS-EUD focused on “Democratizing AI Development”, namely on EUD for AI-based systems, where end users are called on to become end-user developers of intelligent agents, digital twins, collaborative systems, and social robots. Theoretical and empirical work analyzing pros and cons of this new EUD wave, identifying requirements for end-user development of AI, and acceptance of related solutions were invited. In this edition, we discussed the adoption of EUD in new fields, the proposal of novel EUD paradigms, and the impact of AI-based EUD in terms of user acceptability and appropriation. Software infrastructures and eco-systems supporting the re-use of solutions and the emergence of meta-design practices were of particular interest, linking the challenges relating AI to topics central to the IS-EUD community.

IS-EUD 2021 collected research contributions as full papers, short papers, work-in-progress and doctoral consortium papers that presented

- New, simple, and efficient environments for end-user development
- New processes, methods, and techniques for empowering users to create, modify, and tailor digital artifacts
- Case studies and design implications on challenges and practices of end-user development
- Theoretical concepts and foundations for the field of end-user development
- Methods and techniques for end-user development of AI-based devices
- Approaches to end-user development based on conversational interfaces
- Methods and tools to deal with cybersecurity through end-user development

The paper track received 26 submissions of full and short papers, of which we accepted 11 full papers and 4 short papers after a rigorous double-blind review process.

The program was opened by the keynote speaker Gerhard Fischer, Professor Emeritus of Computer Science at the University of Colorado Boulder, USA, who explored the relationship between specific AI approaches, meta-design, and cultures of participation, to illustrate different design strategies that will advance EUD not only as a technology but also as a cultural transformation.

Due to the COVID-19 pandemic, this edition of IS-EUD 2021 was held online, thus limiting the interaction opportunities that have always characterized the past editions of this symposium. This is one more reason to thank all the authors and reviewers for their commitment and contribution to make the symposium a successful event!

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