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End-User Development

5th International Symposium, IS-EUD 2015
Madrid, Spain, May 26–29, 2015
Proceedings

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Preface

In its fifth edition the International Symposium of End-User Development came to Madrid, hosted by the Interactive Systems Research group (DEI Lab) of Universidad Carlos III de Madrid and MediaLab-Prado. The collaboration between these two public entities brought this academic conference to a unique venue; a public citizen lab, always open to new ways of doing research, production, and diffusion. Its location in a lively cultural area surrounded by coworking spaces, and, specially, its reputation as an active center in the promotion of new models of technology production and the reflection on their impact in our lives and societies made MediaLab-Prado the perfect place to start closing the gap between the academic community and end users. This is one of the main goals pursued in this edition by IS-EUD, which will try to engage citizens by making more accessible the innovations in end-user development.

My world, my device, my program.

In an increasingly connected world, we use information and communication technologies in more and more of our work practices and everyday routines. End users face the challenge of adapting and combining these technologies through different kinds of artifacts for various and differing purposes, engaging in creative, often collaborative, activities to make technologies and infrastructures fit their practice. End-user development has established itself as a research discipline that connects the ergonomics of programming with the users' needs and abilities to shape the technological infrastructures we live in. The research does not aim to make everybody a "traditional" programmer, but to allow everybody to be in control of the technologies they live and work with in a way that is natural or intuitive to them, in their context and for their practices. This includes improving the concepts and interfaces for programming and configuration as well as supporting end users in their activities to share, delegate, and collaborate.

Following the path started in the 2013 edition in Copenhagen, the link with participatory design was also a topic explored in Madrid. Ubiquitous computing and the Internet of Things gained also relevance in the symposium, and we aimed at connecting to relevant societal movements like the Makerspaces and FabLabs. These emerging areas of research and development aim to change the way we interact with the world around us, and how we empower ordinary people to create and change the future. Therefore, at the core of their vision and challenge they require us to empower end users to adapt technologies to their own needs. Therefore, discussing the contribution of EUD methods and tools becomes more timely than ever.

The full papers chairs Carmelo Ardito and Carlos Jensen, in close collaboration with the short papers chairs, Ignacio Aedo and Alexander Boden, were in charge of designing a varied and exciting program including different types of contributions and covering a broad spectrum of research related to EUD and participatory design. Thanks to the hard work of our Program Committee, the rigorous review process resulted on 10 full papers and 12 short papers accepted. An industrial paper by Airbus Spain will illustrate how the

avionics industry is joining the EUD movement to provide personalization capabilities to their end users.

Our two keynote speakers will also open their talks to the public to engage nonacademics in the EUD community. David Cuartielles, cofounder of the Arduino platform and director of the Prototyping Laboratory at K3 at Malmö University's School of Arts and Communication, is one of the leading researchers in open source platforms and interaction design. Professor Dr. Albrecht Schmidt from the University of Stuttgart is a well-known researcher in the area of Human-Computer Interaction who is now involved in several projects related to the application of physical and augmented computing to different contexts. Both will enrich the symposium with their extensive expertise and inspiring points of view.

Connecting researchers and end users.

Pursuing the goal of engaging end users in the symposium, the 5th IS-EUD introduces a new category of participation again open to the public: the Playground. This special track, organized by Andrea Bellucci, Lily Diaz, and Monica Maceli, is devoted to establishing spaces for end users to interact with EUD technologies. We hope that this interaction between researchers and end users will be a first step to look for innovative ways to link the EUD research community with its stakeholders, the society.

The Workshops Chairs, Daniela Fogli and Yvonne Dittrich, managed to attract the third edition of the workshop on Cultures of Participation in the Digital Age that this year will deal with the theme "Coping with information, participation, and collaboration overload." Organized by a group of international researchers with strong ties to the EUD community, including Barbara Rita Barricelli, Gerhard Fischer, Anders Mørch, and Antonio Piccinno, CoPDA 2015 offers an excellent chance to further explore the socio-technical dimension of advances in social and participatory technologies. The workshop along with the Doctoral Consortium, organized by Clarisse de Souza, Panos Markopoulos, and Simone Stumpf, took place in the Leganés Campus of Universidad Carlos III de Madrid where the Technical School was located.

The Conference General Chairs had the good fortune to count on the generous and rigorous work of a group of varied and brilliant chairs, including those in charge of the publicity (Teresa Onorati and Patrick Shih), the local arrangements (Telmo Zarronandía and Sergio Santiago), the organization in MediaLab-Prado (Marcos García, Clara Lapetra, and Patricia Domínguez), and the volunteers. They hope and expect that you all enjoy IS-EUD 2015 as much as they enjoyed being part of its preparation.

Thanks to all for making this possible and please do not forget to enjoy also the beautiful and unique city of Madrid!

March 2015

Paloma Díaz
Volkmar Pipek
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Keynote Speeches

Programming Ubiquitous Computing Environments

Albrecht Schmidt

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Abstract. Computing becomes a part of our everyday environment. Interaction in the “real world” is more and more determined by ubiquitous computing systems that are tailored to fit a specific environment. These systems can only be created with strong domain knowledge. End users may be the right group to develop or at least tailor such systems. We show two examples of how domain expert can program systems: one looks at how to transfer programming by demonstration to ubicomp scenarios and the other on how to use examples as recipes for a new development. In the outlook we extrapolate from current practices of sharing videos to a future where multimodal and sensor-rich examples can be continuously recorded and may become the basis for new approaches for a truly user-centered development of cyber-physical systems.

Opensource Hardware and Education

David Cuartielles

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Abstract. Arduino is a free, opensource hardware platform that can be reprogrammed with a piece of opensource software. Software that reprograms hardware allows people to transform the way they understand and interact with the world because electronics are omnipresent in our everyday activities. Elevators run with microcontrollers, in an average car there are seventy microcontrollers and even a microwave oven has microcontrollers. The goal of Arduino is to empower people other than engineers to understand interaction paradigms such as physical, tangible and ubiquitous computing and to create their own interactive artifacts with digital electronics. Eventually, it democratizes learning by practical experimentation so that learners discover how to be independent, how to use things by themselves, how to exploit those things to build interactive systems by themselves and how to be critically demanding about technology.

In this talk, I will introduce the feature that makes a free hardware platform such as Arduino a powerful learning tool that foster creativity and I will talk about a vision for the computing education for the 21st century: accessible and pleasant approaches to teach kids how to reprogram the surrounding environment. To this end, I will share experiences and insights gathered from project-based learning experiments with Arduino in secondary schools.

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