

Research and Studies in the Domain of Human-Computer Interaction at Tallinn University Institute of Informatics

Katri Tammsaar

Institute of Informatics
Tallinn University
Narva Rd 29,
10120 Tallinn, Estonia
katri.tammsaar@tlu.ee

David Lamas

Institute of Informatics
Tallinn University
Narva Rd 29,
10120 Tallinn, Estonia
drl@tlu.ee

ABSTRACT

Tallinn University Institute of Informatics has developed specialist expertise in the area of human-computer interaction in recent years. An Interaction Design Laboratory was founded in 2009 which is leading various research projects, educational study programs and training courses in the field, as well as service provision for clients in private sector.

The academic program for international students is conducted in English and is comprised of Masters in Human-Computer Interaction and Doctor of Information Society Technologies.

Author Keywords

research activities; overview

ACM Classification Keywords

A.m.: Miscellaneous

General Terms

Management

INTRODUCTION

The Institute of Informatics at Tallinn University offers academic study programs at bachelor, masters and doctorate levels, providing also a number of single courses and additional training to all interested.

The research and development activities of the Institute are coordinated by the Centre for Educational Technology (CET), which operates as an interdisciplinary R&D unit within the Institute, including the Digital Safety Laboratory (www.tlu.ee/dsl) and the Interaction Design Laboratory (idlab.tlu.ee).

Historical background

Tallinn University was established as a merger of the former Tallinn Pedagogical University and several other universities and research institutions in 2002. The cumulative tradition of teacher training dates back to 1919 when a Teachers' Seminary was established in Tallinn, being formed into a higher educational establishment in 1952.

The history of teaching computer science at Tallinn

University dates back to 1965 with the introduction of the first computer science related courses within the mathematics study program. A separate Chair of Informatics was established in 1989, and a multimedia laboratory opened in 1993, launching the independent academic activities in the domain of computer science at Tallinn University.

RESEARCH FOCUS DOMAINS

The main research themes in the Institute of Informatics are related to developing the next-generation of distributed learning environments involving interoperable social software tools.

The Institute is one of the key contributors to the technology-enhanced learning infrastructure of Estonian E-university (the consortium of all major Estonian universities), thus providing a unique opportunity to use almost the entire higher education sector at a national level as a test-bed for new tools and methods for technology-enhanced learning.

The Institute has been actively participating in the 6th Framework Programme (Information Society Technology) projects Calibrate and iCamp; the 7th Framework Programme projects IntelLEO and S-Team; eContentPlus project iCoper, and several others. In May 2012 the integrated project Learning Layers (Scaling up Technologies for Informal Learning in SME Clusters) was ranked no. 1 in the ICT Call 8 of the 7th Framework Programme (Technology-Enhanced Learning).

Interaction Design Laboratory

The Interaction Design Laboratory (IDL) represents Estonia in the European funded TwinTide Research Network, which aims to harmonize research and practice on design of, and evaluation methodologies for, computing artifacts across sectors and disciplines.

The IDL has an active team of researchers and practitioners, led by Prof David Lamas. The current projects are: CoCreat (www.cocreat.eu), CIAKL (ciakl.ulufona.pt), LearnMix. The LearnMix project is a relatively new research theme focused on the re-

conceptualization of the e-textbook as aggregations of both professionally developed and user-contributed content accessible through a wide range of devices).

ACADEMIC TEACHING

The academic teaching in computer science at bachelor level has been harmonized within Estonia to enable students to select postgraduate institutions whose research themes align with their interests. At master and doctorate levels the universities offer unique and specialized study programs.

The Institute of Informatics at Tallinn University is the only institution in Estonia that focuses on 'soft' information and communication technologies including social media applications, learning ecosystems, interaction design, workplace learning and other related fields. At master level the Institute teaches one international 2-year masters program (120 ECTS) in English: **Human-Computer Interaction** (<http://hci.tlu.ee>), and three masters programs in Estonian: IT Management, Educational Technology, Teacher of Computer Science and School IT Manager. At doctorate level the program **Information Society Technologies** is offered both in Estonian as well as in English.

The staff at IDL teach a number of bachelor and master level courses, and supervises research projects on masters, doctorate as well as post-doctorate levels.

Human-Computer Interaction (HCI) Masters Program

HCI program is carried out by an international team of professors and lecturers, with the goal of preparing human-computer interaction experts, who understand and create user-friendly technology which harmonizes with and improves human capabilities, goals, and social environments.

Students of the HCI program undertake interdisciplinary research and courses from the disciplines of computer science, design, behavioural sciences and social sciences. Examples of master theses currently being pursued are: The effect of interactive technologies on UX in the context of the museum exhibitions; Exploring the effects of graphic design in the user's experience of software artifacts; Exploring the use of eye-tracking in user experience research; User centered re-design of a regulated service.

Doctoral and Post-Doctoral Research

The research carried out within the doctoral program Information Society Technologies and respective topics are the following: The aesthetics of interaction design; Analysis and design for appropriative interaction; Ubiquitous mobile interactions; Foundations for 21st century textbooks: a textbook metaphor for educational content aggregation.

Post-doctoral research includes topics such as: bridging the digital divide with mobile digital libraries; ubiquitous mobile interactions; textbook metaphor for educational content aggregation; design of m-government services, etc.

INTERNSHIPS

The Centre for Educational Technology under the Institute of Informatics at Tallinn University is the primary developer of educational software in Estonia and internship places are provided within various software development projects. In recent years several international students have been participating in the software development projects under European Life Long Learning Program's Erasmus schemes.

TRAINING AND DISSEMINATION

The IDL promotes awareness of the field by contributing to interaction design courses at Tallinn Summer School (<http://summerschool.tlu.ee/>) and Tallinn Winter School (<http://winterschool.tlu.ee/>). The course New Media: Experimental Interaction Design is included on the course list of both Summer School 2013 as well as Winter School 2013. The course Design of Serious Games is also taught at the Summer School 2013.

The IDL is also providing training and services to clients from the private sector such as initial requirements elicitation, prototype development and assessment, usability studies and improvement recommendation.

As part of the training carried out within the European Innovation Academy, which organizes 3-week intensive start-up trainings in July 2013, Prof David Lamas was conducting a two-day program of lectures and workshops on paper prototyping and evaluating of prototypes.

The IDL hosted a Pan-Baltic World Usability Day in November 2012. The event will be carried out annually.

CONCLUSION

Tallinn University Institute of Informatics and its Interaction Design Laboratory is carrying out research and teaching activities in the domain of human-computer interaction design. The focus is pointed to the design of ubiquitous and mobile interactions and theoretical human-computer interaction. Relevant interest areas are also the contribution of human-computer interaction to development and to sustainability. Recently attention has been on the aspects of the uptake of human-computer interaction approaches and respective values by information technology companies in small and emerging markets.

ACKNOWLEDGMENTS

The participation of Tallinn University Institute of Informatics at the 10th Romanian Human-Computer Interaction Conference is supported by the Estonian Higher Education and Research- and Development Activities in Information and Communications Technology State Program 2011 – 2015.