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SUMMER SCHOOL “Digital Technologies for Interactive Smart Spaces”

Week 1 - “Digital Interactive Smart Spaces”

July 11-15, 2022

Villa del Grumello | Como Lake

uise.lakecomoschool.org



GENERAL SCHEDULE

MONDAY JULY 11

WHEN	WHAT	WHO: Students + ...
8:30 – 9:00	Registration	School Staff
9:00 – 9:15	Welcome Address	Franca Garzotto and Maristella Matera Politecnico di Milano
9:15 – 10:45	WHEN THE SENSES MEET TECHNOLOGY: DESIGNING MULTISENSORY EXPERIENCES	Marianna Obrist UCL, London, UK
10:45 – 11:15	<i>Coffee break</i>	
11:15 – 12:45	REDEFINING THE “SMART-EVERYTHING” PARADIGM: BEYOND "SMART-ONLY" CITIES AND ISLANDS	Norbert Streitz Smart Future Initiative, Germany
12.45 – 13.45	<i>Lunch</i>	
13.45 – 15.15	ADVANCED UBIQUITOUS, CONTEXT-AWARE TECHNOLOGY FOR SMART SPACES	Tsvi Kuflik University of Haifa, Israel
15.15 – 15.45	<i>Coffee break</i>	
15.45 – 17.15	DESIGNING LOCATION-BASED EXPERIENCES	Nikos Avouris University of Patras, Greece
17:15 – 18:30	PLANNING THE PROJECT WORK <ul style="list-style-type: none"> • PRESENTATION OF PROJECT THEMES (EDUCATION, HEALTH, CH) • TEAM FORMATION 	Franca Garzotto and Maristella Matera

TUESDAY JULY 12

WHEN	WHAT	WHO: Students + ...
9:00 – 10.30	THE CHALLENGE OF TECHNOLOGY UPTAKE IN EDUCATIONAL AND CLINICAL SETTINGS: BARRIERS AND FACILITATORS	Tamar Weiss University of Haifa, Israel
10:30 – 11:00	<i>Coffee break</i>	
11:00 – 12:30	MULTI-STAKEHOLDER DESIGN PARTNERS: FACILITATING DEVELOPMENT, LOCALIZATION AND ADAPTATION OF REHABILITATION TECHNOLOGIES	Arie Melamed Yekel ALYNnovation, Israel
12.30 – 13.30	<i>Lunch</i>	
13.30 – 15.00	ISOLATION IN AUGMENTED REALITY: WORKING TOWARDS A GROUP-ORIENTED SITUATED USER EXPERIENCE FOR AR IN PUBLIC SPACES	Narcis Pares Univ. Pompeu Fabra, Barcelona, Spain
15.00 – 15.30	<i>Coffee break</i>	
15.00 – 16.30	ECO-CENTRIC INTERACTION FOR THE RE-BALANCE OF THE RELATIONS BETWEEN HUMANS AND NATURE	Nuno Nunes Tecnico,U. Lisbon, Portugal
16:30-19:30	<i>Social Event: Cruise on the Lake</i>	

WEDNESDAY JULY 13

WHEN	WHAT	WHO: Students + ...
9:00 – 10.30	END-USER CREATION AND CONTROL OF DAILY AUTOMATIONS IN INTELLIGENT ENVIRONMENTS	Fabio Paterno ISTI, CNR, Italy
10:30 – 11:00	<i>Coffee break</i>	
11:00 – 12:30	MULTISENSORY EXPERIENCES IN SMART SPACES	Franca Garzotto Politecnico di Milano
12.30 – 13.30	<i>Lunch</i>	
13.30 – 15.00	CO-DESIGN OF WEARABLES FOR SPORTS: OPPORTUNITIES FOR PERSONAL INTERACTION IN OUTDOOR AND INDOOR SPACES	Massimo Zancanaro University of Trento
15:00 – 16:30	MULTIMODAL BEHAVIORAL ANALYTICS AND INTERFACE TOOLS: ADVANCING HUMAN LEARNING	Sharon Oviatt Monash Univ., Melbourne, Australia
16.30 – 17.00	<i>Coffee break</i>	
17:00 – 18:30	STUDENTS' WORK: UX DESIGN	Tutors

THURSDAY JULY 14

WHEN	WHAT	WHO: Students + ...
9:00 – 10:30	DESIGNING SMART DEVICES FOR OUTDOOR EDUCATION	Maristella Matera Politecnico di Milano
10:30 – 11:00	<i>Coffee break</i>	
11:45 – 12.30	PSYCHOLOGICAL USER MODELING AND RULE RECOMMENDATIONS IN A SMART HOME CONTEXT	Cristina Gena Università di Torino
12.30 – 13.30	<i>Lunch</i>	
13:30 – 16.00	STUDENTS' WORK: UX DESIGN	Tutors
16.00 – 16.30	<i>Coffee break</i>	
16.30 – 18.30	STUDENTS' WORK: PROJECT PRESENTATION	Tutors

FRIDAY JULY 15

WHEN	WHAT	WHO: Students + ...
9.00 – 10.30	PROJECT PRESENTATION	School Chairs and Speakers
10:30 – 11:00	<i>Coffee break</i>	
11:00 – 12.30	PROJECT PRESENTATION	School Chairs and Speakers
12.30 – 13.00	FINAL DISCUSSION	School Chairs and Speakers
13.00 – 14.00	<i>Lunch and Goodbye</i>	

ABSTRACTS AND BIOS

Speaker's Name: Marianna Obrist

Affiliation: UCL, London, UK

Speaker's web site: <https://multi-sensory.info/>

Talk time: Monday July 11 (9:15 – 10:45)

Title: WHEN THE SENSES MEET TECHNOLOGY: DESIGNING MULTISENSORY EXPERIENCES

Abstract: Multisensory experiences are a central part of our everyday lives. However, we often tend to take them for granted, at least when our different senses function normally (when we have sight functioning) or are corrected-to-normal (when we use glasses). However, closer inspection to any, even the most mundane experiences, reveals the remarkable sensory world in which we live in. Consider the seemingly ordinary experience of eating a regular meal. At first, it may seem like an ordinary experience, however, it is actually a fusion of the senses. We first eat with our eyes, but we are also exposed to countless sensory signals that will influence our dining experience such as food textures, tastes, aromas, and even sounds that come both from the atmosphere in which we are immersed in while eating and our interactions with the food and utensils we use to eat. Beyond eating there are many more examples for multisensory experiences can make a difference in how we perceive and interact with the world we live in, from the physical, virtual, and mixed reality environments. I will present the role of multisensory research from a Human-Computer Interaction (HCI) and experience-centered design perspective and showcase how we can integrate knowledge on the human sensory systems with advances in computing technology.

CV: Marianna Obrist is Professor of Multisensory Interfaces at UCL (University College London), Department of Computer Science and Deputy Director (Digital Health) for the UCL Institute of Healthcare Engineering. Her research ambition is to establish touch, taste, and smell as interaction modalities in human-computer interaction (HCI), spanning a range of application scenarios, from immersive VR experiences to automotive, and health/wellbeing uses. Before joining UCL, Marianna was Professor of Multisensory Experiences at the School of Engineering and Informatics at the University of Sussex, and Marie Curie Fellow at Newcastle University. Marianna is a co-founder of OWidgets Ltd, a University spin-out that is developing novel digital smell technologies. She is a Visiting Professor at the Material Science Research Centre at the Royal College of Art in London. Most recently, she co-authored a book on [‘Multisensory Experiences: where the senses meet technology’](#).

Speaker's Name: Norbert Streitz

Affiliation: Smart Future Initiative, Germany

Speaker's web site: <https://www.smart-future.net/norbert-streitz/>

Talk time: Monday July 11 (11:15 – 12:45)

Title: REDEFINING THE "SMART-EVERYTHING" PARADIGM: BEYOND "SMART-ONLY" CITIES AND ISLANDS

Abstract: This talk presents a critical and constructive reflection and evaluation of the 'Smart-Everything' Paradigm especially from a user-interaction and design perspective. 'Smart' services exploiting data collected by a range of sensors being part of an Internet of Things (IoT) infrastructure and controlled by software based on Machine Learning (ML) and Artificial Intelligence (AI) result in an increasing degree of importunate automation, lack of transparency and privacy infringements. Humans are increasingly removed from being the 'operator' and thus in control of their environment and decisions because they are – at an ostensible level of the discussion – considered to be the cause of errors, e.g., in automated driving, smart cities, manufacturing processes, bank credit assessment.

Our proposal is to redefine the 'Smart-Everything' Paradigm via a human-/citizen-centred design approach, keeping the human in the loop, looking at the interaction and balance of mental structures, social structures, information structures and architectural structures, i.e., the built urban environment. Considering the following design trade-offs is central: complete automation vs. human control and empowerment, importunate smartness vs. privacy. Application examples are taken from the domain of 'smart' cities, urban spies, and automated driving with the goal to move beyond 'smart-only' cities towards humane, sociable, cooperative, self-aware hybrid cities. A recent application domain is rethinking 'smart' islands towards Lighthouses of Research and Innovation.

CV: Dr. Dr. Norbert Streitz (Ph.D. in physics, Ph.D. in cognitive science) is a Senior Scientist and Strategic Advisor with more than 35 years of experience in ICT. Founder and Scientific Director of the Smart Future Initiative launched in 2009. 1987–2008: Deputy Director and Division Manager at Fraunhofer Institute, Darmstadt, Germany. Lecturer at Computer Science Department, Technical University Darmstadt. 1978–1986: Assistant Professor at Psychology Department, Technical University Aachen (RWTH). At different times of his career, post-doc research fellow at the University of California, Berkeley; visiting scholar at Xerox PARC, Palo Alto; and Intelligent Systems Lab, Tsukuba Science City, Japan. He has published/edited 33 books/proceedings and authored/coauthored more than 165 peer-reviewed papers in a wide range of areas: Cognitive Science, Human-Computer Interaction, Experience Design, Hypertext/Hypermedia, CSCW, Ubiquitous Computing, Ambient Intelligence, Privacy by Design, Industry 4.0, Autonomous Driving, Hybrid Smart Cities, Smart Airports, Smart Islands. Norbert was a PI of many projects funded by the European Commission and other funding agencies as well as industry. He has organized and chaired many conferences and is regularly invited as a keynote speaker at

international commercial as well as scientific events. Norbert is an elected member of the CHI Academy, a prestigious ACM SIGCHI award honoring his substantial contributions shaping the field of human-computer interaction. (<https://www.smart-future.net/norbert-streitz/>)

Speaker's Name: Tsvi Kuflik

Affiliation: University of Haifa, Israel

Speaker's web site: tsvikak.hevra.haifa.ac.il

Talk time: Monday July 11 (13.45 – 15.15)

Title: ADVANCED UBIQUITOUS, CONTEXT-AWARE TECHNOLOGY FOR SMART SPACES

Abstract: The talk will present a variety of technologies that can be applied for providing personalized, context-aware support for users in smart spaces. The talk will start by describing several applications of smart museums and their underlying technologies and use these concrete examples as a starting point for discussions about users' needs, possible current and future solutions that may be considered and integrated when a smart environment is designed

CV: Tsvi Kuflik is a full professor and former head of the Information Systems Department at the University of Haifa, Israel. His main areas of research are Ubiquitous User Modelling and Intelligent User Interfaces. For over than fifteen years Tsvi is leading a research group at the University of Haifa, focusing on "Active Museum" – applying novel computing and communication technology for supporting museum visitors. Previously he was a researcher at the scientific and technological research institution in Trento Italy. Prior to that, Tsvi coordinated an industrial consortium that developed and implemented software reuse methodology. Prof. Kuflik is the author of over 250 referred publications in journals and conferences proceedings. Tsvi has been the chair and organizer of numerous international conferences and workshops, including the series of Personal Access to Cultural Heritage (PACTH) workshops during the past twelve years. Tsvi is a distinguished ACM scientist, a senior IEEE member and the chair emeritus of IUI steering committee.

Speaker's Name: Nikolaos Avouris

Affiliation: University of Patras, Greece

Speaker's web site: <https://hci.ece.upatras.gr/people/avouris/>

Talk time: Monday July 11 (15.45 – 17.15)

Title: DESIGNING LOCATION-BASED EXPERIENCES

Abstract: This talk will cover the design lifecycle of location-based applications. It is based on the experience of workshops with this title organized in a number of international events and the experience of teaching a design course in the same area in the context of the Master program in Human-Computer Interaction. The objective of this course is to introduce participants to location-based applications and in particular location-based games and the challenges relating of designing such artifacts. Key characteristics of this genre are introduced first, followed by a design framework and a set of design guidelines. Examples of location-based applications designed will be presented and typical design patterns as extracted from previous workshops will be discussed. Activities and design hands on workshop are also included.

CV: Professor of Human-Computer Interaction, University of Patras, Greece, head of the Interaction Technologies Lab and Director of the Joined Master in Human-Computer Interaction (hcimaster.upatras.gr). Dean of School of Engineering (2021-2024). Experience of over 30 years in research and teaching in the area of interaction design and human-computer interaction with emphasis on locative media, study of interaction with cultural heritage and online learning. Member of IFIP TC-13.

Speaker's Name: Patrice L. (Tamar) Weiss

Affiliation: University of Haifa and ALYN Hospital Children's Pediatric & Adolescent Rehabilitation Center, Israel

Speaker's web site: <https://t.ly/plweiss.pubs>

Talk time: Tuesday July 12 (9:00 – 10.30)

Title: THE CHALLENGE OF TECHNOLOGY UPTAKE IN EDUCATIONAL AND CLINICAL SETTINGS: BARRIERS AND FACILITATORS

Abstract: While virtual and augmented rehabilitation technologies have the potential to assist adults and children with disabilities, usage has not yet reached its full potential. Reasons are varied, including limitations in human resources and institutional infrastructure, high costs and skepticism and apprehension by patients, family members and clinicians. In this talk I will present the results of focus groups in which clinicians, researchers and rehabilitation-technology developers and distributors discussed the barriers and facilitators to greater usage of rehabilitation technology in educational and clinical settings. Thematic analysis was used to develop guidelines for successful incorporation of technology at four different levels: (1) at the Technology-Development Level; (2) at the Institutional Level; (3) at the Clinical-Team Level; and at the Clinician-Patient Level. The implications of implementing these guidelines will be discussed within the context of current health care models.

CV: Prof. Weiss directs and manages clinical research projects at the University of Haifa's Laboratory for Innovations in Rehabilitation Technology (LIRT) where she develops and evaluates novel virtual environments, haptic interfaces, co-located and online technologies to explore the effect of individual and collaborative rehabilitation. Rehabilitation and special education populations of interest include stroke, spinal cord injury, cerebral palsy, developmental coordination disorder, autism and head trauma. She worked with the Gertner Institute led by Prof. Mordechai Shani to develop and implement ReAbility Online, a tele-rehabilitation system which won first prize in the 2014 AbbVie-TEDMED competition for sustainable healthcare. Prof. Weiss' research has been funded by the European Union, the Israel Science Foundation, the Israeli Ministry of Science and Technology and the Israeli Center of Research Excellence: Learning in a Networked Society. She is a founding board member of the International Society for Virtual Rehabilitation. She has authored more than 200 peer-reviewed journal articles and book chapters, co-edited two books, and delivered numerous keynote addresses at international conferences. Prof. Weiss is currently the Executive Research Advisor at the Helmsley Pediatric & Adolescent Rehabilitation Research Center, ALYN Hospital, Israel.

Speaker's Name: Arie Melamed Yekel

Affiliation: ALYNnovation and The Helmsley Pediatric & Adolescent Rehabilitation Research Center, ALYN Hospital, Jerusalem, Israel

Speaker's web site: <https://www.linkedin.com/in/ariemelamed/>

Talk time: Tuesday July 12 (11:00 – 12:30)

Title: MULTI-STAKEHOLDER DESIGN PARTNERS: FACILITATING DEVELOPMENT, LOCALIZATION AND ADAPTATION OF REHABILITATION TECHNOLOGIES

Abstract: To ensure the right of children with disabilities to achieve the best possible quality of life, notwithstanding the challenges they encounter, bottom-up innovation is a crucial aspect of a tailored treatment plan and should be consistently supported at an institutional level. To facilitate the creation of innovative, scalable, reliable rehabilitation solutions for children beyond the hospital walls, an innovation center (ALYNnovation) was founded in 2017 as the ALYN hospital's innovation track; it provides resources and supports entrepreneurs and early-stage start-ups in the identification, development, and commercialization of effective pediatric rehabilitation technologies. By combining multi-stakeholder design partnership with access to the hospital's experienced medical and allied health professionals, patients and families, and state-of-the-art facilities, ALYNnovation offers the ultimate site for research and development, on-site beta testing, pilot implementation and clinical trials that can empower children with physical disabilities around the world. This talk will focus on theories underlying the blending of multiple stakeholder design partnerships to create effective rehabilitation solutions and will provide examples of the way in which our current technologies are designed, tested and disseminated.

CV: Arie Melmed-Yekel is senior high-tech executive with over 20 years of global experience and proven record of leading teams to outstanding business results. Arie joined ALYN Hospital in 2019 and since then manages ALYNnovation, an innovation hub for the research, development and commercialization of pediatric rehabilitation and assistive technologies; there are currently 12 companies in the ALYNnovation portfolio. In 2021, established and now manages ALYN PARC, the Helmsley Pediatric Rehabilitation Research Center. Arie holds a BSc in Applied Physics and ElectroOptics and an MBA from Ben Gurion University.

Speaker's Name: Narcis Pares

Affiliation: Univ. Pompeu Fabra, Barcelona, Spain

Speaker's web site: <https://www.upf.edu/web/fubintlab>

Talk time: Tuesday July 12 (13.30 – 15.00)

Title: ISOLATION IN AUGMENTED REALITY: WORKING TOWARDS A GROUP-ORIENTED SITUATED USER EXPERIENCE FOR AR IN PUBLIC SPACES

Abstract: Augmented Reality (AR) has the evocative power of allowing us to see that which is invisible to the naked eye and add new layers of meaning to our (physical) world. This is a very rich and useful medium for public spaces such as museums, heritage sites, etc. However, mainstream AR technologies tend to isolate users both in navigation and direct interaction, and separate users from the actual physical space that is being augmented. Public spaces typically entail small group visits (from two to eight persons) and therefore isolation of users breaks the group cohesion. We will discuss the paradigms involved in mainstream AR technologies, their disadvantages for group-oriented experiences, how we can counter this through a novel paradigm, and the development of a new device that implements the paradigm to achieve rich experiences that explicitly support and foster group activity.

CV: Narcís Parés is a Tenure Associate Professor in the ICT Department (DTIC) of Universitat Pompeu Fabra (Barcelona, Spain). His research is focused on Full-body Interaction based on theories of Embodied Cognition, Human-Computer Interaction, Developmental Psychology, etc. He leads the Full-Body Interaction Lab within the Cognitive Media Technologies Group. His approach starts from Interaction Design, Interactive Communication and Interaction Models. His background is: PhD in Audiovisual Communication -specialized in Virtual Reality- (UPF), MSc in Image Processing and Artificial Intelligence (UAB) and BSc in Computer Engineering (UPC). He is co-creator and was coordinator of the Interdisciplinary Master in Cognitive Systems and Interactive Media (UPF) for ten years. He has been secretary of the Audiovisual University Institute (IUA of UPF) and head of the Interactive Systems Laboratory (IUA). He is co-founder and scientific director of Galeria Virtual from 1993 to 2000, where he directed the technological aspects of a number of experimental Virtual Reality productions applied to contemporary art. He is a member of the Steering Committee of the ACM SIGCHI International Conference on Interaction Design and Children and a member of the Editorial Board of the International Journal of Child Computer Interaction, Elsevier.

Speaker's Name: Nuno Jardim Nunes

Affiliation: Técnico, U. Lisbon, Portugal

Speaker's web site: <http://nunojnunes.me>

Talk time: Tuesday July 12 (15.00 – 16.30)

Title: ECO-CENTRIC INTERACTION FOR THE RE-BALANCE OF THE RELATIONS BETWEEN HUMANS AND NATURE

Abstract: The twin crisis of climate and nature requires the HCI community to rethink how to design technological interventions that reconcile concepts and theories for ecological computing and more-than-human design promoting climate and biodiversity actions and nature awareness and conservation. I will present insights, case studies and design guidelines on how to use technology to support more eco-centric interactions. Through these examples, I build the case for this new perspective which I named eco-centric interaction design.

CV: [Nuno Jardim Nunes](#) is Professor of HCI at Técnico – [University of Lisbon](#), currently serving as Department Head and President and founder of the [Interactive Technologies Institute](#) (ITI), the leading HCI and design research institute in Portugal. Nuno is the co-Director of the [Carnegie Mellon International partnership](#) and adjunct faculty at the Human-Computer Interaction Institute at [Carnegie Mellon University](#). Nuno is a strong advocate of the role of human-centric design in participatory culture and sustainability. His research influenced how digital technologies (including sensors, ML/AI, interactive storytelling, and mixed reality) can engage and inspire digital citizens to act sustainably and connect to nature and the broader ecosystems. Recently Nuno was nominated by the Portuguese Government to coordinate the working group to propose a vision for Portugal's participation in the [New European Bauhaus](#). His contribution led to the [Bauhaus of the Seas](#) manifesto he is currently pursuing as a thematic NEB proposal. Nuno organized several key conferences of the [ACM SIGCHI](#) and published more than 160 peer-reviewed papers in international journals and conferences in the areas of HCI, software, energy, sustainability, design and service science. He was PI and co-PI of several research projects totalling more than 15M€ from European to nationally and industry funded.

Speaker's Name: Fabio Paternò

Affiliation: CNR-ISTI, HIIS Laboratory, Pisa, Italy

Speaker's web site: <http://hiis.isti.cnr.it/Users/Fabio/index.html>

Talk time: Wednesday July 13 (9:00 – 10.30)

Title: END-USER CREATION AND CONTROL OF DAILY AUTOMATIONS IN INTELLIGENT ENVIRONMENTS

Abstract: End-User Development (EUD) is a growing research field aiming to provide people without programming experience with concepts, methods and tools to allow them to create or modify their applications. Recent mainstream technological trends related to the Internet of Things and artificial intelligence have further stimulated interest in this approach. This talk aims to help understand and address the issues involved in end-user development in the context of interactive smart spaces, in order to allow people to control and configure dynamic sets of interconnected devices, objects, and appliances. I discuss possible approaches to supporting users in understanding, creating, debugging, executing and monitoring personalized automations in Internet of Things scenarios. The discussion will indicate some conceptual dimensions useful to assess possible solutions, report concrete experiences in real-world deployments from recent projects, and analyse the main current challenges.

CV: Fabio Paternò is Research Director at CNR-ISTI, where he leads the Laboratory on Human Interfaces in Information Systems. His research activity has mainly been carried out in the Human-Computer Interaction (HCI) field, with the goal to introduce computational support to improve usability, accessibility, and user experience for all in the various possible contexts of use. For this purpose, he has continuously led numerous interdisciplinary and international projects for several years. He is also the coordinator of the National Research Project (PRIN) EMPATHY. In his research work he has always aimed at deepening and intertwining both theoretical and practical innovative aspects. Over the years he has been working on Ubiquitous Interactive Systems, End-User Development, Adaptive User Interfaces, Accessibility, and Model-based Design. He has published more than two hundred fifty papers in refereed international conferences or journals, some of them have been widely cited (<https://scholar.google.it/citations?user=6J7ls8cAAAAJ&hl=en>). He has been chair or co-chair of several international well-known HCI conferences. He is an ACM Distinguished Scientist and member of the SIGCHI Academy.

Speaker's Name: Franca Garzotto

Affiliation: Politecnico di Milano

Speaker's web site: <https://garzotto.faculty.polimi.it/>

Talk time: Wednesday July 13 (11:00 – 12:30)

Title: MULTISENSORY EXPERIENCES IN SMART SPACES

Abstract: Smart Space technology enables the creation of innovative user experiences in physical spaces that are strongly engaging, support multiple modes of interaction, and provide controlled stimulations for all senses. The talk will present examples of multisensory user experiences in a smart space called “Magic Room”, and then will discuss the requirements for multisensory experiences in smart spaces from both the design and the technology perspective, highlighting the many challenges that designers and developers must face. It will finally present a design model for multisensory interactive smart spaces that can help to master the complexity and to conceptualize the different design choices, in order to make the whole development process more systematic, more efficient, and better organized.

CV: Franca Garzotto is associate professor at the Department of Electronics, Information and Bio-engineering (DEIB) at Politecnico di Milano, where she teaches various courses on interactive technology and Human-Computer Interaction in the Master Program “Computer Science and Engineering” and in the Master Program “Communication Design”. She is the director of i3lab, an R&D lab at DEIB specialized in advanced interactive technology and applications (<https://i3lab.polimi.it/>). She has been the project leader of several national and international research projects on smart spaces, mixed reality, and multimodal interaction for learning and for support to children with cognitive impairments.

Speaker's Name: Massimo Zancanaro

Affiliation: University of Trento

Speaker's web site: <https://webapps.unitn.it/du/en/Persona/PER0004568/Didattica>

Talk time: Wednesday July 13 (13.30 – 15.00)

Title: CO-DESIGN OF WEARABLES FOR SPORTS: OPPORTUNITIES FOR PERSONAL INTERACTION IN OUTDOOR AND INDOOR SPACES

Abstract: Sports provides exciting opportunities for exploring interactive technologies, and HCI research in this field is, in many respects, in its infancy. Despite interest in the “human aspects” of interaction, HCI is still driven by technical aspects of design while often overlooking the impact of technology on the user experience. In this talk, we briefly summarize the state of the art of wearables for sports and discuss two case studies of co-design for rock climbing and speleology.

CV: Massimo Zancanaro is a full professor of Computer Science at the Department of Psychology and Cognitive Science of the University of Trento and the head of the Intelligent Interfaces and Interaction Research Unit at Fondazione Bruno Kessler. His research interests are in the field of Human-Computer Interaction and specifically on the topic of Intelligent Interfaces for which he is interested in investigating aspects related to the design as well as to study the reasons for use and non-use.

Speaker's Name: Sharon Oviatt

Affiliation: Monash Univ., Melbourne, Australia

Speaker's web site: <https://research.monash.edu/en/persons/sharon-oviatt>

Talk time: Wednesday July 13 (15:00 – 16.30)

Title: MULTIMODAL BEHAVIORAL ANALYTICS AND INTERFACE TOOLS: ADVANCING HUMAN LEARNING

Abstract: Multimodal-multisensor data afford a deeply human-centred foundation for detecting human behavioral states, and then designing user-centered adaptive systems based on them. For example, analysis of human communication and movement patterns are proving particularly apt for assessing human intention (e.g., deception), mental load and cognition (e.g., attentional load, domain expertise), motivation and emotion (e.g., task engagement), and related health and mental health status (e.g., anxiety, neurodegenerative disease). In this lecture, I'll focus on what multimodal behavioral analytics is revealing about human learning. I'll also describe how expressively rich interface tools, including multimodal ones based on writing and speech, can stimulate human learning.

CV: Professor Sharon Oviatt is internationally known for her work on human-centered interfaces, multimodal-multisensor interfaces, mobile interfaces, educational interfaces, the cognitive impact of computer input tools, and behavioral analytics. Her research is known for its pioneering and multidisciplinary style at the intersection of Computer Science, Psychology, Linguistics, and Learning Sciences. She has published a large volume of high-impact papers, including recent books on: *The Design of Future Educational Interfaces* (2013), *The Paradigm Shift to Multimodality in Contemporary Computer Interfaces* (2015), and the multi-volume *Handbook of Multimodal-Multisensor Interfaces* (co-edited with B. Schuller, P. Cohen, A. Krueger, G. Potamianos and D. Sonntag, 2017-2019). Sharon has been recipient of the inaugural ACM-ICMI Sustained Accomplishment Award, National Science Foundation Special Creativity Award, ACM-SIGCHI CHI Academy Award, and an ACM Fellow Award. She also has delivered over 100 keynotes, invited talks, and tutorials worldwide at conferences, universities and corporate events.

Speaker's Name: Maristella Matera

Affiliation: Politecnico di Milano

Speaker's web site: <https://matera.faculty.polimi.it/>

Talk time: Thursday July 14 (09:00 – 10:30)

Title: DESIGNING SMART DEVICES FOR OUTDOOR EDUCATION

Abstract: Contact with nature is important for the development of personality and the growth of children and can be a valuable source for learning. However, especially in urban settings, children tend to spend less and less time outdoors. In this scenario, in which technology is considered to be one of the major causes for this lack, how is it possible to exploit the marked attraction of children towards digital devices to rethink their interaction with natural environments? And how is it possible to make children protagonists in the design of new technology-enhanced outdoor environments, which are attractive to them and from which they can learn? This presentation will try to answer these questions by illustrating the results of research carried out in the last years on the topic of “smart nature ecosystems”.

CV: Maristella Matera received a “Laurea” Degree in Computer Science (cum laude) from the University of Bari in 1994 and a Ph.D. in Computer and Automation Engineering from Politecnico di Milano in 2000. At the beginning of her academic career, she was awarded several fellowships to support her research work at Italian and foreign institutions. In particular, in 1996 she was visiting researcher at the Graphics, Visualization, and Usability Center, at the Georgia Institute of Technology (Atlanta, USA). In 2002 she achieved a position as an assistant professor at DEIB, then in 2010 as an associate professor at the same department.

Maristella's research focuses on aspects at the intersection between Web Engineering and Human-Computer Interaction, with emphasis on design methods and tools for Web application development, and specifically concentrates on advanced interaction paradigms for the design of IoT systems, conversational technologies for data exploration and Web browsing. She is the author of about 200 papers and four books. She organized several international events related to the field of Web Engineering and HCI. She is Associate Editor for the journals “Future Generation Computer Systems” (Elsevier) and “ACM Transactions on the Web”. She regularly serves as a Program Committee member of several international conferences, and as a reviewer for international journals. She teaches courses on Interaction Design and Computer Science Fundamentals.

Maristella is chair of [SIGCHI Italy](#), the Italian chapter of the ACM Special Interest Group on Human-Computer Interaction.

Speaker's Name: Cristina Gena

Affiliation: Università di Torino

Speaker's web site: <http://www.di.unito.it/~cgena/>

Talk time: Thursday July 14 (11:45 – 12.30)

Title: PSYCHOLOGICAL USER MODELING AND RULE RECOMMENDATIONS IN A SMART HOME CONTEXT

Abstract: In past empirical evaluations we tested user's performance and user's perceived usefulness of trigger, action, and rule recommendations for a configuration task in a smart home scenario considering the user psychological traits. On the basis of the results, we propose a rule recommendations service, using the popular IFTTT dataset for a smart home configuration, proposing several approaches as collaborative filtering, rule popularity and user modeling based on psychological constructs. Our recommender also proposes a security check, connected to an external service, aimed at advising the user about the possible security problems that the IFTTT rule could trigger.

CV: Cristina Gena (<http://www.di.unito.it/~cgena/>) is associate professor in Computer Science at the Department of Computer Science, University of Turin. She is teaching web programming, HCI and HRI at the School of ICT and at the Computer Science bachelor program. She published more than 100 papers in international journals, books and conferences. She is heading the smart HCI lab of the ICxT Innovation center of the University of Turin, wherein one of the major lines of research is Interaction with Smart Objects. She is UM Inc. Advisory Board member (um.org), and she is member of the UMAP (User Modelling, Adaptation and Personalization conference) steering committee. She is part of the PhD committee in Computer Science, University of Turin. She has co-organized the following workshops: cAESAR 2020-2021, PATCH 2021-2020-2019-2017-2015-2014, AVICH 2020-2018-2016, MobileCH 2016, AI*HCI 2013. She has been UMAP2020 program co-chair, MUM 2021 technical program co-chair, CHIItaly 2021 short paper chair, IUI 2020-2019 registration chair, UMAP 2015 tutorial chair, CHIItaly 2017 DC co-chair. She is a member of the program committee of numerous international conferences and workshops, the most important conferences in her field (ACM UMAP, ACM IUI, ACM Hypertext, Interact, etc.). She is associate editor of the Behaviour and Information Technologies Journal, and in the editorial board of User modeling and User Adapted Interaction. She recently received a Google Educator Grant for a proposal on educational robotics.

