Augusto Esteves

Curriculum Vitae

January 2015

June - September 2011

PERSONAL IN	FORMATION
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Ph.D. Informatics Engineering (Human-Computer Interaction)

Date of birth Nationality

EDUCATION

M.Sc. Informatics Engineering B.Sc. Informatics Engineering University of Madeira, Portugal	July 2010 July 2008
Work Experience	
Assistant Professor at Instituto Superior Técnico (IST), University of Lisbon Department of Computer Science and Engineering (Portugal)	January 2020 – current
Visiting Professor at the Pohang University of Science and Technology Department of Computer Science and Engineering (Republic of Korea)	Aug. 2021 – Feb. 2022
Assistant Professor at Edinburgh Napier University School of Computing (United Kingdom)	November 2015 – Dec. 2019
Visiting Professor at the Ludwig Maximilian University of Munich (LMU) Funded by the Scottish Informatics and Computer Science Alliance	August 2018
Visiting Professor at the Ulsan National Institute of Science and Technology Funded by Samsung Electronics (Republic of Korea)	May June 2018
Founding Partner at Prsma	September 2015 – Dec. 2017
Visiting Professor at Lancaster University InfoLab21, School of Computing and Communications (United Kingdom)	Pebruary – December 2016
Research Fellow at Siemens Corporation Healthcare Technology Centre (United States of America)	May – October 2015
Research Associate, Postdoctoral Fellow at Lancaster University InfoLab21, School of Computing and Communications (United Kingdom)	September 2014 – May 2015
Visiting Researcher at the Ulsan National Institute of Science and Technology Interactions Lab, School of Design & Human Engineering (Republic of Korea)	Feb. 2013 – Feb. 2014
Visiting Researcher at the Eindhoven University of Technology User Centered Engineering, Department of Industrial Design (Netherlands)	February – June 2012

Research Intern at the Korea Advanced Institute of Science and Technology

Telerobotics and Control Lab, Department of Mechanical Engineering (Republic of Korea)

ACTIVITY AND SERVICE

Organizing Committee

ACM International Conference on Tangible, Embedded and Embodied Interaction (TEI '22)

International Conference on Mobile and Ubiquitous Multimedia (MUM '22)

International Symposium on Communication by Gaze Interaction (COGAIN '21-22)

ACM/IEEE International Conference on Human-Robot Interaction (HRI '20)

ACM SIGCHI Symposium on Spatial User Interaction (SUI '17)

ACM SIGCHI Conference on Designing Interactive Systems (DIS '17)

ACM International Conference on Tangible, Embedded and Embodied Interaction (TEI '16)

Select Program Committee

ACM International Conference on Tangible, Embedded and Embodied Interaction (TEI '14-15, '19, '21)

International Conference on Graphics and Interaction (ICGI '21-22)

ACM CHI PLAY '21

ACM SIGCHI Conference on Human Factors in Computing Systems (CHI '17, '19-20) - Extended Abstracts

ACM International Conference on Multimodal Interaction (ICMI '20)

IEEE Artificial Intelligence & Virtual Reality (AIVR '20)

ACM Conference on Designing Interactive Systems (DIS '20) - Provocations and Works-in-Progress

ACM International Conference on Creativity & Cognition (CC '19, '21-22) - Papers and Best Paper

ACM SIGGRAPH Int. Conference on Virtual-Reality Continuum and its Applications in Industry (VRCAI '19)

ACM International Conference on Interactive Surfaces and Spaces (ISS '16, '18-19)

IFIP Conference on Sustainable Internet and ICT for Sustainability (SustainIT '17)

Select Workshops and Demos

7th International Workshop on Everyday Virtual Reality (35 participants) IEEE Conference on Virtual Reality and 3D User Interfaces (2021)

1" International Workshop on Cross-Reality Interaction (38 participants)
ACM International Conference on Interactive Surfaces and Spaces (2020)

IT4U: Eye-tracking (60 participants, three sessions) School of Computing, Edinburgh Napier University (2016)

Current Service and Membership

Steering Committee for the ACM International Conference on Tangible, Embedded and Embodied Interaction Associate Editor for the International Journal of Human-Computer Studies (IJHCS)

Member of the Communication by Gaze Interaction (COGAIN) Association

Eureka's Eurostars Programme Technical Expert

Member of the Interactive Technologies Institute (ITI) Scientific Committee

ACM's Special Interest Group on Computer Human Interaction (SIGCHI)

Select Invited Talks, Seminars and Guest Lectures

'19-21 Five Years of Motion Matching Interfaces and Their Impact in Ubiquitous Computing

Department of Design, Ulsan National Institute of Science and Technology (UNIST)

Department of Computer Science and Engineering, Pohang University of Science and Technology

Department of Computer Science and Engineering, Ewha Womans University

Institute for Systems and Robotics, Instituto Superior Técnico, University of Lisbon

Department of Computer Science and Engineering, Instituto Superior Técnico, University of Lisbon

What Challenges Amait UX Practitioners in this New Age of Mixed-Reality? ErgoUX 2020, Lisbon

'17-19 Motion Matching: A New Interaction Paradigm for the IoT

IXDS, Berlin

Centre for Design Informatics, University of Edinburgh

4th Aslla Symposium, Korea Institute of Science and Technology

Department of Computer and Information Sciences, Northumbria University

Department of Computer Science and Engineering, Instituto Superior Técnico, University of Lisbon

Glasgow Interactive SysTems (GIST), University of Glasgow

Human-Computer Interaction research group, University of Bath

Computer Science Department, Nova University of Lisbon (NOVA)

Department of Industrial Design, Eindhoven University of Technology (TU/e)

School of Design & Human Engineering, Ulsan National Institute of Science and Technology (UNIST)

2016 Orbits: Gaze Interaction for Smart Watches Using Smooth-Pursuit Eye Movements

UIST Reprise, ACM SIGGRAPH 2016

2015 Internal Seminar

Healthcare Technology Center, Siemens Corporation

2013 Creating Physical Interfaces to Digital Problems

School of Design & Human Engineering, Ulsan National Institute of Science and Technology (UNIST)

PhD Examinations

2021 Alex Torquato Souza Carneiro - External Examiner

Supervisor: Dr Carlos Morimoto, University of São Paulo

2019 Llogari Casas - Internal Examiner

Supervisors: Dr G. Leplâtre, Prof. Kenneth Mitchell (Disney Research), Edinburgh Napier University

Current Supervision (MSc)

D. Gonçalves, M. Dias, T. Costa, A. David¹, A. Castelão, J. Graça, M. Custódio, and C. Gomes².

Past Supervision

Select BSc Eva Babette Mackamul; Carl Bishop; Jessica Bissett (with Prof. Kenneth Mitchell, Disney

Research); Robin Piening, Philippe Schroeder, and Elizabeth Bouquet (with Dr Ken Pfeuffer,

LMU Munich)

MSc João Gomes, Wonter Mertens, Stan Depuydt, and Piet Goris (with Dr Adalberto Simeone, KU

Leuven); Ana Abreu (with Dr Argenis Gomez, University of Portsmouth); Andreia Valente; Ana de Oliveira (with Dr Mohamed Khamis, University of Glasgow); Mariana Mendes; Andrew McKelvey; Katharina Reiter and Stefanie Meitner (with Dr Ken Pfeuffer, LMU Munich); David Verweij (with Dr Saskia Bakker and Dr VJ Khan, Eindhoven University of Technology); and Renato Bernardino and Paulo Banla (with Dr I. Oakley, Uni. of Madeira)

PhD Xi Wang and Gopal Jamnal (with Prof. Xiaodong4 Liu, Edinburgh Napier University),

Christopher Clarke (with Prof. Hans Gellersen⁴, Lancaster University)

RAs and Interns Francesco Boschi and Gianni Tumedei (with Dr Catia Prandi, University of Bologna); Federica

Vinella, Szymon Klinkoz, Hector Macleod, Pierre Ruiz, Frida Lindblad, Colin Thomson, and Nicholas Sawford; Fábio Pacheco, Luís Brito, and Joaquim Perez (with Dr Filipe Quintal, University of Madeira); Martin Hering and Markus Wirth (with Prof. Hans Gellersen³, Lancaster University); Pedro Mendes, Fábio Luis, and Vitor Baptista (with Dr Filipe Quintal

and Dr Marry Barreto, Prsma); Rasel Islam (with Dr Ian Oakley⁷, UNIST)

TEACHING

Program Leadership

2019 BSc (Hons) Computing and User Experience (from 2016) Edinburgh Napier University

Lectures

2020 Human-Computer Interaction – Undergraduate program (ongoing) Instituto Superior Técnico, University of Lisbon

2019 Virtual-Reality - Graduate program (ongoing)
Instituto Superior Técnico, University of Lisbon

Mobile Applications Development – Undergraduate program Edinburgh Napier University

Playful Interaction – Undergraduate program (from 2016) Edinburgh Napier University

Ubiquitous Computing – Undergraduate program (from 2016) Edinburgh Napier University

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¹ Co-supervised with Stuart James (HT)

² Co-supervised with Major Tiago Guedes (Academia Militar)

³ Temporary supervision on my part.

2016 Divergent Interaction – Graduate program Edinburgh Napier University

Responsive Environments – Undergraduate program Edinburgh Napier University

2014 Vector Graphics – Undergraduate program
Teaching Assistant for Dr Yoram Chisik, University of Madeira

IxD - Graduate program
Teaching Assistant for Dr Monchu Chen, University of Madeira

HONORS

- 2021 Teaching Excellence, Department of Computer Science and Engineering, IST, University of Lisbon
- 2020 Teaching Excellence, Department of Computer Science and Engineering, IST, University of Lisbon
- 2020 Excellent Reviewer Recognition, ACM Conference on Designing Interactive Systems (DIS '20)
- 2019 Best paper award, ACM Transactions on Computer-Human Interaction (TOCHI)
- 2017 Excellent Reviewer Recognition, ACM Conference on Human Factors in Computing Systems (CHI '17)
- 2016 Computing Reviews: Notable Computing Books and Articles of 2015
- 2015 Best paper award, ACM Symposium on User Interface Software and Technology (UIST '15)
- 2014 Marie Skłodowska-Curie Early Stage Researcher (Scholarship, Computing and Communications)
- 2011 PhD studentship, Portuguese Foundation of Science and Technology (FCT)
- 2010 First place in the Fraunhofer Portugal Challenge 2010 (for MSc thesis)
- 2009 Semi-finalist in the Mobile Design category of the Adobe Design Achievement Awards 2009

MEDIA

2017 Esteves, A. (2017, October 18). When VR meets reality – how live concerts could be enhanced by 21st-century opera glasses. Retrieved from http://www.independent.co.uk/life-style/gadgets-and-tech/how-live-concerts-could-be-enhanced-by-21st-century-opera-glasses-a8002606.html

Esteves, A. (2017, October 10). When VR meets reality – how live concerts could be enhanced by 21st-century opera glasses. Retrieved from http://theconversation.com/when-vr-meets-reality-how-live-concerts-could-be-enhanced-by-21st-century-opera-glasses-85409

Esteves, A. (2017, October 10). When VR meets reality – how live concerts could be enhanced by 21st-century opera glasses. Retrieved from http://www.econotimes.com/When-VR-meets-reality--how-live-concerts-could-be-enhanced-by-21st-century-opera-glasses-942132

2016 BBC (2016, March 2). Controlling a smartwatch with your eyes. Retrieved from http://www.bbc.co.uk/news/technology-35578976

Boxall, A. (2016, January 25). See how eye-tracking may make your smartwatch easier to use in the future. Retr. from http://finance.yahoo.com/news/see-eye-tracking-may-smartwatch-131903743.html

Burgess, M. (2016, January 22). Scientists create eye tracking software for smart watches (Wired UK). Retrieved from http://www.wired.co.uk/news/archive/2016-01/22/eye-tracking-smartwatch

Esteves, A., Velloso, E., Bulling, A. and Gellersen, H., 2016. 2. Orbits: Gaze Interaction for Smart Watches. interactions, 23(1), 9.

SELECTED RESEARCH WORK

Empathic AuRea: Exploring the Effects of an Augmented Reality Cue for Emotional Sharing Across Three Face-to-Face Tasks

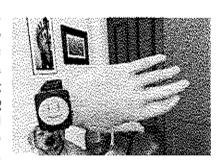
ITI / LARSyS, Instituto Superior Técnico, University of Lisbon https://youtu.be/5BTiwRZgcds

Past emotional sharing works have elicited emotional understanding between remote collaborators using bio-sensing, but how face-to-face communication can benefit from biofeedback is still fairly unexplored. This work introduces an AR communication cue from an emotion recognition neural network model and ECG data. A study where pairs of participants engaged in three tasks found our system to positively affect performance and emotional understanding, but negatively affect memorization.



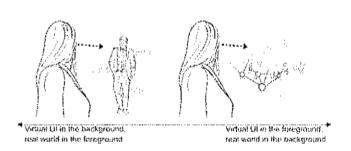
Immersive Speculative Enactments: Bringing Future Scenarios and Technology to Life Using VR ITI / LARSyS, Instituto Superior Técnico, University of Lisbon https://youtu.be/vA4Px06]nuk

In this work we present the concept of Immersive Speculative Enactments (ISEs), a novel approach extending conventional Speculative Enactments to Virtual Reality. Through the ISEs, participants are immersed in the speculative world depicted by the designers and can engage with it in its truest envisioned form. To explore this concept, we designed four scenarios with increasing technological uncertainty: Virtual Parent, Cross-Reality Lectures, Smart Dog Monitoring, and A Postcard from Marx. We present the concept of ISEs and contrast them to other forms of speculation, provide guidelines on how to design them, as well as reflecting on the challenges, limitations, and potential associated with the role of ISEs in the HCl discourse.



ARtention: A Design Space for Gaze-adaptive User Interfaces in Augmented Reality ITI / LARSyS, Instituto Superior Técnico, University of Lisbon https://youtu.be/A_gUI4dhehc

ARtention is a design space for gaze interaction tailored to in-situ AR information interfaces. It highlights three important dimensions to consider in the UI design of such gaze-enabled applications: transitions from reality to the virtual interface, from single- to multi-layer content, and from information consumption to selection tasks. Such transitional aspects bring previously isolated gaze interaction concepts together to form a unified AR space, enabling more advanced application control seamlessly mediated by gaze.



From A-Pose to AR-Pose: Animating Characters in Mobile AR ITI / LARSyS, Instituto Superior Técnico, University of Lisbon https://youtu.be/UqW9qr8sWPo

AR-Pose is a mobile AR app that generates keyframe-based animations of rigged humanoid characters. The smartphone's positional and rotational degrees of freedom are used for: (i) as a 3D cursor to interact with inverse kinematic (IK) controllers placed on or near the character's joints; and (ii) as a virtual camera that enables users to freely move around. Users can activate/deactivate actions such as selecting an IK controller or pressing animation control buttons placed in a hovering 3D panel via touch input.



DtD: Pre-reading Assessment of Literacy Risk via a Visual-Motor Mechanism on Touchscreen Devices ITI / LARSyS, Instituto Superior Técnico, University of Lisbon

In this publication we expand early work on Dot-to-Dot (DtD), a non-linguistic visual-motor mechanism aimed at facilitating the detection of the potential reading difficulties of children at pre-reading age. To investigate the effectiveness of this approach on touchscreen devices, we conducted a user study with 33 children and examined their task performance logs as well as language test results. Our findings suggest that there is a significant correlation among DtD task and series of language tests. We conclude the work by suggesting different ways in which DtD could be scamlessly embedded into everyday mobile use cases.



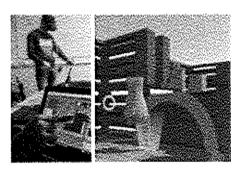
PIÑATA: Pinpoint Insertion of Intravenous Needles via Augmented Reality Training Assistance ITI / LARSyS, Instituto Superior Técnico, University of Lisbon

The purpose of this work is to explore the benefits of optical sce-through augmented-reality (OST-AR) in needle insertion training and to verify if the proposed OST-AR tool complements conventional training practices. A comparison study was conducted between our tool and the conventional method to train central venous catheter (CVC) insertion using a dummy of the upper torso and neck. The overall results show that the OST-AR tool proposed can complement conventional training.



Exploring Bi-Directional Pinpointing Techniques for Cross-Reality Collaboration ITI / LARSyS, Instituto Superior Técnico, University of Lisbon

In this work we implemented two systems where we explore how an external user (i.e., in the real world) can interact across realities with a user immersed in virtual reality (VR), either locally or remotely. In the first we investigate three cross-reality techniques for the external user to draw the attention of their VR counterpart on specific objects present in the virtual environment. In the second system we expand on these two techniques to explore an even starker cross-reality interaction between users in VR and users interacting via a tablet computer to direct each other to pinpoint objects in the scene.



Comparing Selection Mechanisms for Gaze Input Techniques in Head-mounted Displays ITI / LARSyS, Instituto Superior Técnico, University of Lisbon

Head movements are a common input modality on VR/AR headsets. However, although they enable users to control a cursor, they lack an integrated method to trigger actions. Many approaches exist to fill this gap: dedicated "clickers", on-device buttons, mid-air gestures, dwell, speech and new input techniques based on motion matching. These proposals are diverse and there is a current lack of empirical data on the performance of, experience of, and preference for these different techniques. This hampers the ability of designers to select appropriate input techniques to deploy. We conduct two studies that address this problem.



StARe: Gaze-Assisted Face-to-Face Communication in AR ITI / LARSyS, Instituto Superior Técnico, University of Lisbon https://voutu.be/GyQG2Zb8V1w

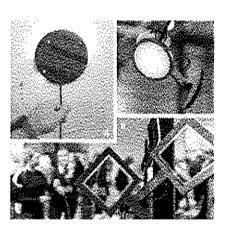
This research explores the use of eye-tracking during Augmented Reality (AR) supported conversations. In this context, users can obtain relevant information to support the conversation without being distracted by this. We propose using gaze to allows users to gradually reveal information on demand. Information is indicated around the user's head and becomes fully visible when being gazed upon.



Designing Motion Matching for Real-World Applications Centre for Interaction Design, Edinburgh Napier University

https://youtu.be/7KIW18pbvng

This work explores the product possibilities and implications of motion matching, a novel interaction technique where users interact by rhythmically moving their bodies to track the continuous movements of different interface targets. Through the development and qualitative study of four novel and different real-world motion matching applications, we elaborated on the suitability of motion matching in different multi-user scenarios and further developed three interactive lamps with motion matching controls: wall- (A), standing- (B) and ceiling-lamp (C).



Wattom: a Consumption and Grid Aware Smart Plug with Mid-Air Controls

Centre for Interaction Design, Edinburgh Napier University https://youtu.be/LtYrlFp91fY

Wattom is a highly interactive ambient eco-feedback smart plug that aims to support a more sustainable use of electricity by being tightly coupled to users' energy-related activities. We describe three use cases of the system: using Wattom to power connected appliances and understand the environmental impact of their use in real time; scheduling these power events; and presenting users with personal consumption data desegregated by device.



SmoothMoves: Smooth Pursuits Head Movements for Augmented Reality

Centre for Interaction Design, Edinburgh Napier University https://youtu.be/vd4tXletAz4

SmoothMoves is an interaction technique for augmented reality (AR) based on smooth pursuits head movements. It works by computing correlations between the movements of on-screen targets and the user's head while tracking those targets. We report error rates and acquisition times on different types of AR devices: head-mounted (2.6%, 1965ms) and hand-held (4.9%, 2089ms). We also present an interactive lighting system prototype that demonstrates the benefits of using smooth pursuits head movements in interaction with AR interfaces.



Remote Control by Body Movement in Synchrony with Orbiting Widgets

Centre for Interaction Design, Edinburgh Napier University https://youtu.be/ffRmXRGcC5M

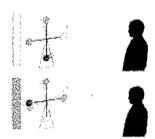
We consider how users can use body movement for remote control with minimal effort and maximum flexibility. TraceMatch is a novel technique where the interface displays available controls as circular widgets with orbiting targets, and where users can trigger a control by mimicking the displayed motion. The technique uses computer vision to detect circular motion as a uniform type of input, but is highly appropriable as users can produce matching motion with any body part.



AmbiGaze: Direct Control of Ambient Devices by Gaze

Centre for Interaction Design, Edinburgh Napier University https://youtu.be/CoIR6FFEGS4

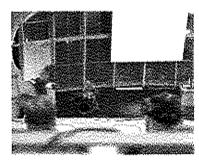
AmbiGaze is a smart environment that employs the animation of targets to provide users with direct control of devices by gaze only through smooth pursuit tracking. AmbiGaze enables robust gaze-only interaction with many devices, from multiple positions in the environment, in a spontaneous and comfortable manner.



Head-Mounted Displays as Opera Glasses

Centre for Interaction Design, Edinburgh Napier University

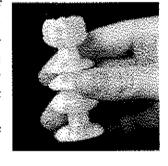
This work explores the use of head-mounted displays (HMDs) to deliver a front row experience to any audience member during a live event. To do so, it presents a two-part user study that compares participants reported sense of presence across three experimental conditions: front row, back row, and back row with HMD (displaying 360° video captured live from the front row). Data was collected using the Temple Presence Inventory (TPI), which measures presence across eight factors. The reported sense of presence in the HMD condition was significantly higher in five of these measures, including spatial presence, social presence (SP), passive SP, active SP, and social richness.



The ATB Framework

Interactions Lab, Ulsan National Institute of Science and Technology

The ATB (Artifact, Tool and Body) framework contributes to our understanding of how epistemic actions are used in human problem-solving tasks, providing researchers with a video-coding tool to more systematically assess this complex type of behaviour in tangible interaction. In terms of HCI, this tool has two objectives. Firstly, it is intended as a mechanism to evaluate tangible systems in terms of the type, diversity and appropriateness of the epistemic actions they support, and in terms of the impact these actions can have on more traditional metrics such as performance time or errors. Secondly, we argue that a series of such evaluations will result in a corpus of knowledge describing the use of epistemic actions in real tasks.



A Look at the Effects of Handheld and Projected Augmented-reality on a Collaborative Task Centre for Interaction Design, Edinburgh Napier University

We designed a comparative study between handheld and projected augmented-reality (AR) systems during a collocated, collaborative game-inspired task. The goal of the work is to start a body of knowledge that describes the effects of different AR approaches in users' experience and performance – i.e., to look at AR not as a single entity with uniform characteristics. This includes engagement, collaboration strategies, and performance.



Orbits: Gaze Interaction for Smart Watches

InfoLab21, Lancaster University https://youtu.be/x6hbicxIIIbg

Orbits is a novel technique that enables gaze-only input in a design that accounts for both the limited display space of smart watches and the spontaneous nature of glancing at a watch. Orbits relies on interface controls that contain targets that move continuously in circular trajectories. Each target performs a distinct function and can be activated by following it with the eyes for a certain amount of time. They can be used for both discrete control (by treating each Orbits activation as a command) and continuous control (by using the time following the target to modify the value of the controlled parameter). Each Orbits widget comprises a trajectory, one or multiple targets, and feedback elements.



Beats: Tapping Gestures for Smart Watches

Interactions Lab, Ulsan National Institute of Science and Technology https://youtu.be/7Dkbfv_IQD0

Beats is a new type of multi-finger input that is specifically designed for the very small touch screens of smartwatches. It is based on what we term beating gestures, pairs of simultaneous or rapidly sequential touches (and optionally one or more releases) made by the index and middle finger of one hand. Essentially, instead of tapping a single finger to a screen, a beating gesture involves adjacent screen contact (and optionally release) with two fingers and in three closely controlled intervals: either simultaneously or with one event immediately preceding the other as part of a single coordinated movement.



Touchcloud

Interactions Lab, Ulsan National Institute of Science and Technology https://youtu.be/9HkVilG10eE

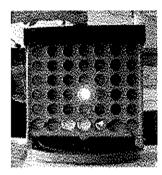
Touchcloud is novel service that enables users to tag their physical environment with their Dropbox files. This is achieved through a set of bespoke NFC stickers and an application running on NFC-enabled Android mobile phones. The system is simple. Firstly, users attach the stickers to, on or in objects in their environment. Secondly, they choose specific Dropbox files or folders to physically tag and select the Touchcloud command from a context menu (available via the *Share* Dropbox menu on Android devices).



Physical Games or Digital Games?

User Centred Engineering, Eindhoven University of Technology

This work explored how different interfaces to a problem-solving task affect how users perform it. Specifically, it focused on a customised version of the game of Four-in-arow and compared play on a physical, tangible game board with that conducted in mouse and touch-screen driven virtual versions. This was achieved through a repeated measures study involving a total of 36 participants and which explicitly assessed aspects of cognitive work through measures of time task, subjective workload, the projection of mental constructs onto external structures and the occurrence of explanatory epistemic actions. The results highlight the relevance of projection and epistemic action to this problem-solving task and suggest that the different interface forms afford instantiation of these activities in different ways.



PUBLICATIONS

Simeone, A., Cools, R., Depuydt, S., Gomes, J., Goris, P., Grocott, J., Esteves, A., and Gerling, K. 2022. Immersive Speculative Enactments: Bringing Future Scenarios and Technology to Life Using Virtual Reality. In CHI Conference on Fluman Factors in Computing Systems (CHI '22). Association for Computing Machinery, New York, NY, USA, Article 17, pp. 1–20.

Valente, A., Lopes, D., Nunes, N., and Esteves, A. 2022. Empathic AuRea: Exploring the Effects of an Augmented Reality Cue for Emotional Sharing Across Three Face-to-Face Tasks. In 2022 IEEE Conference on Virtual Reality and 3D User Interfaces (IEEE VR '22), pp. 158-166.

Ma, S., Nisi, V., Esteves, A., Prandi, C., Nicolau, H., Tumedei, G., Nogueira, J., Boschi, F., and Nunes, N. 2021. Crowdsensing-enabled Service Design for Floating Students during the COVID-19 Pandemic. In Proceedings of the 9th Congress of the International Association of Societies of Design Research (IASDR '21). Springer.

Pfeuffer, K., Abdrabou, Y., Esteves, A., Rivu, R., Abdelrahman, Y., Meitner, S., Saadi, A. and Alt, F. 2021. ARtention: A Design Space for Gaze-adaptive User Interfaces in Augmented Reality. *Computers & Graphics* 65: 0003-6870.

de Oliveira, A., Khamis, M. and Esteves, A., 2021. GaitWear: a smartwatch application for in-the-wild gait normalisation based on a virtual field study assessing the effects of visual and haptic cucing. *Behaviour & Information Technology* (pp. 1-18).

Tumedei, G., Boschi, F., Prandi, C., Gomes, L., Calheno R., Abreu R., Ma S., Nisi V., Nunes N. and Esteves, A. 2021. Promoting a Safe Return to University Campuses during the COVID-19 Pandemic: Crowdsensing Room Occupancy. In *Praceedings of the Conference on Information Technology for Social Good* (pp. 145-150).

Valente, A., Esteves, A. and Lopes, D., 2021. From A-Pose to AR-Pose: Animating Characters in Mobile AR. In Special Interest Group on Computer Graphics and Interactive Techniques Conference Appy Hour (pp. 1-2).

Park, W., Revés, P., Esteves, A., Kerridge, J., Yim, D. and Oh, U. 2021. Dot-to-Dot (DtD): Pre-Reading Assessment of Literacy Risk via a Tracing Mechanism on Touchscreen Devices. In Ardito C. et al. (eds) *Human-Computer Interaction – INTERACT 2021*. Lecture Notes in Computer Science, vol 12932. Springer, Cham.

Piening, R., Pfeuffer, K., Esteves, A., Mittermeier, T., Prange, S., Schroeder, P. and Alt, F. 2021. Looking for Info: Evaluation of Gaze Based Information Retrieval in Augmented Reality. In Ardito C. et al. (eds) *Human-Computer Interaction — INTERACT 2021*. Lecture Notes in Computer Science, vol 12932. Springer, Cham.

- Prakhasan, P., Belchior, P., Prates, R., Silveira, F., Lopes, D., Cools, R., Esteves, A. and Simeone, A. 2021. Exploring Bi-Directional Pinpointing Techniques for Cross-Reality Collaboration. In 2021 IEEE Conference on Virtual Reality and 3D User Interfaces Abstracts and Workshops (VRW).
- Esteves, A., Shin, Y. and Oakley, I. 2020. Comparing Selection Mechanisms for Gaze Input Techniques in Headmounted Displays. *International Journal of Fluman-Computer Studies* 139: 102414.
- Mendes, H., Costa, C., Silva, N., Leite, F., Esteves, A. and Lopes, D. 2020. PIÑATA: Pinpoint Insertion of Intravenous Needles via Augmented Reality Training Assistance. Comp. Medical Imaging and Graphics 82: 101731.
- Oliveira, A., Khamis, M. and Esteves, A. 2020. Using a VR Field Study to Assess the Effects of Visual and Haptic Cues in "In-the-Wild" Locomotion. In *Cross-Reality (XR) Interaction, ACM ISS 2020* (International Workshop on XR Interaction 2020). ACM, New York, NY, USA, 5 pages.
- Rivu, R., Abdrabou, Y., Pfeuffer, K., Esteves, A., Meitner, S. and Alt, F. 2020. StARe: Gaze-Assisted Face-to-Face Communication in Augmented Reality. In ACM Symposium on Eye Tracking Research and Applications (ETRA '20 Adjunct), 1–5.
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GRANTS

2021 Pedagogic Innovation Projects (internally funded), Co-I

2020 H2020-WIDESPREAD-2018-2020-6:

Blockchain Technologies and Design Innovation for Social Good (international), Co-I

FCT RESEARCH 4 COVID-19 2nd Edition (national), Co-I

2019 Carnegie Research Incentive Grant (national), PI

Pedagogic Innovation Projects (internally funded), Co-I

2018 SICSA: Postdoctoral and Early Career Researcher Exchanges (national), PI

Research Funding Competition (internally funded), PI

- 2017 H2020-LCE-02-2016: Secure, Clean and Efficient Energy (international), Co-I Research Funding Competition (internally funded), PI
- 2016 Carnegie Research Incentive Grant (national), Pl

Santander Mobility Grant (national), PI

Summer Internship Scheme (internally funded), PI

H2020-SMEINST-1-2015: SME Instrument Award (international), Co-I