

Keynote: Designing Pervasive Assistive Technologies with Representative Users

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Abstract—This talk builds on more than 14 years of deep engagements and in-the-wild deployments of mobile technologies within a community of blind people. It makes the case for pervasive assistive technology researchers to be experts in their areas of study: people, and then, technology to serve and empower people.

Index Terms—pervasive accessibility, embedded research, representative users, people with visual impairments, assistive technologies

I. INTRODUCTION

User-centred design (UCD) is deprecated. In areas like accessible computing and assistive technologies, where differences among users, and often from users to researchers, are wide, occasional checkpoints with representative users are not enough [1], [2]. In any research area, research scientists are experts in their matter of study. In an area where the most important and complex *component* is a human being (with a spectrum of abilities, contexts, experiences and needs), the researcher is required to be an expert, eventually a main actor [3], [4], and not just an occasional visitor.

In this talk, I depart from the argument that UCD should not be used as an excuse for superficial and stereotypical technology-focused research. This is of utmost relevance in pervasive contexts where the importance of often unaccounted variables is higher than in more specific environments [5], [6].

I will present our work done in collaboration with a community of people with visual impairments characterised by deep engagements over a period of more than 14 years. I will tell stories of prototypes covering ideation with representative users, co-design, development and evaluation. I will also make the case for building and assessing prototypes in ecological contexts over longitudinal periods [6], [7], whenever possible, as a way to derive knowledge and implications that are not *just* speculations. Last, I will discuss the collateral impacts of this way of doing research, namely on how to engage with communities, sustainability of prototypes, and ethics of deep engagements.

II. SHORT BIO

Tiago Guerreiro is an Assistant Professor at the University of Lisbon (School of Science) and a researcher at LASIGE, where he leads the Tech&People group¹. His main areas

of expertise are HCI, Accessible Computing, and Pervasive Healthcare. In these areas, he has published 75+ peer-reviewed papers. He received awards for 10+ papers, including at ASSETS, CHI, SOUPS, HRI, ITS, and MobileHCI, and an ACM Best of Computing award in 2016. He is Editor-in-Chief for ACM Transactions on Accessible Computing and was ASSETS 2020 General Chair, among many other service roles. He was an invited expert supporting the European Commission in implementing the Web Accessibility Directive. His research is normally done embedded in the communities he works and collaborates with, and characterized by long term deployments and iteration of prototypes with target users.

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¹<https://techandpeople.github.io>