Job Description

Indicative – may not be final

This is a 2-year post-doctoral research post. The successful candidate will contribute to the EPSRC project '*Content Accessibility (CA11y): Highly Individualised Digital Content for Supporting Diverse Needs*'. CA11y is a collaborative project between the Department of Informatics at King's College London and the Department of Language and Communication Science at City, University of London. It is led by PI Dr Timothy Neate (King's) and Co-I Dr Madeline Cruice (City). Partners and collaborators involve charities (Dyscover, Aphasia Re-Connect), BBC Research and Development and several academic institutions. See tdjneate.github.io/CA11y for more.

Project overview

CA11y is an interdisplinary project at the intersection of human-computer interaction, accessibility, and language and communication science. The main aim of CA11y is to explore how we might make the consumption of digital content (e.g., video and audio) more accessible for those with diverse needs.

Project Background

Digital content is a medium through which we engage socially and civically, however, it is not accessible to all. Accessibility for digital content is typically viewed through the lens of standard methods such as subtitles and audio description. While these are powerful for some users, digital content is still of challenge for people with diverse needs. New conceptualizations of digital content, for instance the BBC's Object-Based Media, allow for content to be individualized to each user. The distribution of digital content via the internet, with accompanying metadata, means that content can respond to the end-user's exact requirements. Rather than being edited into one finalized piece, individual audio and video files – accompanied by metadata – can be rendered for each individual on the user's side. This has profound implications for access – for instance, for users who face challenges with language comprehension, we might limit the background noise in a radio drama to make the actor's voice clearer, or we might slow a news ticker to support easier reading comprehension.

CA11y will work with people with aphasia (a language impairment often caused by stroke), to envision novel interventions which leverage highly individualized renderings of digital content to support users with diverse needs.

The Role

The candidate will be responsible for **leading the co-design** and **development of novel accessibility interventions** which make digital content more accessible. This will involve running co-design workshops and developing prototypes in increasingly fidelity with a range of stakeholders. Stakeholders will involve mostly people with language impairment aphasia, but also content producers and technologists at a major broadcaster. Additionally, the candidate will be responsible for leading the iterative prototyping process. They will develop prototypes in increasingly fidelity for a range of devices and formfactors – mobile devices, smartspeakers, custom electronic devices or mixed reality auditory headsets (e.g., bone-conducting headphones). They will also be expected to lead HCI publications under the guidance of the PI, Co-I and advisory team as required.

The candidate will work closely with core CA11y team – the PI (Dr Neate), the Co-I (Dr Cruice) the speech and language researcher on the project (Dr Devane) and a dedicated PhD student working in this area. They will have the chance to be an active member of the supportive community of researchers in the human-centred computing group at King's and the wider relevant hub activities (e.g., the Health Hub). The project includes a generous budget for travel to conferences and equipment, as well as access to King's excellent training programmes. The researcher will be given the opportunity to support the supervision of PhD, MSc and BSc students associated with the project, with a view to positioning them in good stead for future academic roles. The candidate will also benefit from the wider network of researchers and partners on this project.

This post will be offered on a fixed-term contract for 24 months (2 years).

Key responsibilities

- Work closely with the project team to ensure that the aims and objectives of the project are achieved in a timely and effective manner.

- Work with the project team to co-design technologies with end users (people with aphasia) and the wider research team.

- Lead the development of technologies which dynamically render digital content based on user needs.

- Conduct evaluation work of established concepts and prototypes.

- Write papers for publication in conferences, journals, etc.

- Participate in relevant events within the institution or externally, to build contacts to facilitate the exchange of information and advance thinking.

- Support events, conferences, and workshops run by the project to develop the project outputs and research agenda.

- Contribute to the development of further research proposals.

The above list of responsibilities may not be exhaustive, and the post holder will be required to undertake such tasks and responsibilities as may reasonably be expected within the scope and grading of the post.

Skills, knowledge, and experience

Essential criteria

1. PhD (awarded or close to completion), or equivalent experience in human-computer interaction, computer science, or similar.

2. Expertise in human-computer interaction and/or accessibility.

3. Experience in digital prototyping in a range of fidelities.

4. Excellent programming skills, with demonstrable track record in building human-centered systems.

5. Experience in co-design and/or user-centered design.

6. Publications in related HCI venues (e.g., CHI, ASSETS, IMX), ideally with paper awards or other recognition.

7. Excellent communication – i.e. written and verbal skills.

8. Excellent organizational skills.

9. Proven ability to work independently.

10. Excellent interpersonal and team-working skills.

Desirable criteria

1. Expertise in co-design with users with accessibility needs.

2. Expertise in native iOS development and/or cross-platform development.

3. Experience with libraries for dynamic video rendering – for instance video.js, BBC's StoryFormer, or similar tools

4. Experience with video and audio production – e.g., video editing software, digital audio workstations (DAWs).