ICAD2021 WORKSHOP PROPOSAL ON "AUDIO TO AUGMENT YOUR REALITY (AAYR)"

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Goal

Technological advancements in virtual reality (VR), augmented reality (AR), or mixed reality (MR) have made great strides in the last few years. They have paved the way for limitless possibilities in terms of use cases, accessibility, and research. Technology has allowed VR and AR headsets to shrink from the giant bubble-like head mounted devices (HMD) to smaller sleeker ones. The audio aspect, however, has lagged behind in these advances. The goal of our workshop is to discuss and explore the overall impact that sound can have on AR technologies, allowing for a better perceptual experience while using AR displays. The workshop is expected to provide an opportunity to discuss and come up with new taxonomy, use cases, and applications that define the role of audio in AR.

Objectives and Description

The workshop has 3 specific objectives: (1) Provide an organized thinking ground to define the role of audio in AR, as a way to develop a new taxonomy that will define the technology as Audio to Augment Your Reality (AAYR; pronounced as 'air', ɛəl); (2) Conceptualize new use cases for users, ranging from semantic use of reading out visible or invisible information, speech formats, sonification guidelines, and context of usage; and (3) Application of this technology in everyday life and in research as ways to augment our perception of reality. To this end, we will invite researchers and practitioners interested in the role of audio to augment reality to engage in a meaningful discussion. Findings from this workshop will provide the opportunity to generate new taxonomy, research questions and/or validate existing findings, and build a community of AAYR enthusiasts.

Tentative Topics of Interest

- Definition/taxonomy towards AAYR
- Targeted users: blind or visually impaired, students with dyslexia or Autism Spectrum Disorders (ASD)
- Content of use:
  - Reading out visible or invisible objects
  - Providing additional information/explanation about an object of interest
    - Outdoor vs. indoor usage:
      - Navigation on foot
      - In-vehicle
      - Sports
      - Emergencies
      - Stores
      - School, laboratories
      - Office
      - Warehouse
- Audio formats:
  - Speech vs. non-speech sounds
  - Soundscapes
  - Additional layer of information over reality to augment presence
- Further applications:
  - Form factor of devices
  - Bone conduction technology
  - Sound localization
  - Motion Sickness mitigation in autonomous vehicles

Tentative Workshop Format (est. 2 hours)

- Introduction from organizers (10 min)
- Discussion on if it is AR at all (10 min)
- Brainstorming session to define AAYR using virtual post-it notes (Miro/Pad) to create a virtual brainstorming wall (20 min)
- Generate use cases with personas (30 min)
- Coffee break (10 min)
- Presentation on team's personas and use cases (15 min)
- Further application in human factors research (15 min)
- Summary and closing remarks (10 min)

Contact Organizer
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Technical and Space Requirements
Stable internet connection, and a Zoom account.

(Speicher et al., 2019)