

## My Position:

My work sits at the intersection of humanist analysis of digital platforms and the professional practice of digital preservation and stewardship. My interest in this workshop stems from a desire to better understand the ways in which AR will play a role in future quotidian human interaction and what traces of this will need to be collected to create a cultural record. In all the hyperbole about a potential digital dark age (Brand, 1999; Johnston, 2020), the challenge of documenting human interaction in digital worlds remains unaddressed in any adequate sense. Prior work, my own included, on preserving virtual worlds (McDonough et al, 2010; McDonough et al, 2013; Bettivia, 2016) examined both the technical and social challenges in preserving video games, including virtual spaces like *Second Life*. The technical challenges with *Second Life* were, in many ways, the lesser challenges: with Linden Labs a willing partner and a using a bot designed by digital pirates to erase data, it was possible to make copies of *Second Life* islands that could then be stored for posterity. Leaving aside the debates about adequate conservation of digital materials versus fancy storage protocols, we had the means to copy the bits. The bigger challenge was to capture what makes a video game a video game: the social leisure activity that becomes part of daily life experience. *Second Life* islands don't make *Second Life*. According to users, it is the planned and serendipitous social interactions between avatars that makes *Second Life*. My work on the video game series *Carmen Sandiego* demonstrates that all current preservation models fail to encompass the inherently social nature of a simple 1-player game from 1985: while the game only has a single, mostly disembodied avatar, the game play experience was social given the physical setting in which it was played at the time. In 1985, the preponderance of 'edutainment' games were sold to schools. Playing *Carmen Sandiego* often meant multiple students would crowd around the screen, offering advice to the one in control of the keyboard and sharing the labor of searching through encyclopedias to decode the punned hints to find the criminal mastermind. 1985 code is not hard to remove from a floppy disk and store in an institutional repository. In the grand scheme of technological tasks, it's not hard to find or write an emulator for 1985 executable game files, and it's not hard to write entirely new code that gives the same surface functions and game play as the original code. It is where the game enters use in a human setting and a physical setting that the task of preservation becomes difficult. The physical-world markers, geographical locations and attendant stereotypes, are necessary to engage in game play: many of these have changed since 1985. The foundational reference model for professionalization of digital preservation, the Open Archival Information System (CCSDS, 2017), explicitly recommends that digital preservationists track the knowledge base of users and update preservation data as the sociotechnical context changes. What this means in practices is highly contested: while it may encompass documenting changes to the physical-world markers, documenting the social interactions between collocated players is less certain. The human social interaction is not encoded in the game's executable files, but those interactions are the reason why it is important to encapsulate the game as part of the cultural record. As a profession, digital preservation acknowledges the challenges of preserving VR: at a recent Covid-version of the annual digital preservation conference that brings together international researchers and practitioners, participants explicitly asked about the future of VR preservation. However, given my research, I would argue that AR may pose the bigger preservation challenge because it encompasses 'the social experiences of two or more collocated people' and because it relies on 'augmentations which are triggered by physical-world markers, such as objects, people, and locations'. AR preservation is a more complicated task than VR

preservation because it has all the challenges of virtual worlds, yet also requires throughput on analog materials and potentially vast physical spaces for understanding—in a word, all the complexities of physical performance, digitality, and shared human experience.

These challenges are also present when considering the privacy concerns of AR, particularly when we broach the subject of saving a record of human interaction. We must then turn to questions about the potential dangers inherent to self- and auto-documenting technologies, risks associated with attaching a physical location to digital data about humans subjected to surveillance. Like police bodycam data (Becker and Blanchette, 2017), we have to think about how much gets data gets preserved and when that preservation is necessary, and/or beneficial, and/or actively harmful.

As AR comes to play a larger role in daily life, the imperative to preserve it will grow. But working in preservation, the potential of AR also raises new possibilities in terms of the delivery of preserved and obsolete technology. Digital preservation is a young profession, only just over 25 years old as a profession with ISO standards and educational paths. This means that much of our labor has been devoted to the front-end activities of collecting and storing digital content. Many fewer resources have gone into thinking about how we present and disseminate this content in the future. Beyond delivering bits back to users, how might we employ AR to help create affective experiences for users that bring obsolete materials out of digital cold storage into use in a way that reflects the daily experience users would have had way back when they were in wide use?

Finally, I am interested in the proposed method for this workshop. Design fiction for dystopic and utopic narratives as a method is inherently relevant to digital preservation, because the very nature of our work is guessing at the socio-technical needs of some imagined community in some imagined future. The default is something like an Akrich methodology (1995). But her implicit critique of designing future systems based on current producers outlines the limitations of this method as inclusive, and even functional, technology design. While the CFP position paper lays out this science fiction approach as standard in HCI work, it is much less so in my own professional subfield. Working with the AR design and research community at this stage is also crucial, given our perpetual mandate to push preservation labor upstream: we cannot preserve what we do not understand.

### **Research Questions:**

- How do we preserve AR?
- How might preserving AR help us capture human interaction in ways that go beyond recording of videos or transcripts of conversational data?
- What does the preservation information package for AR contain?
  - Does it contain code?
  - What happens if the code is dynamic, or functions like Facebook data, where every item is loaded after the request without using unique identifiers for discrete assets?
  - What if the code is pulling from live data sources?

- How do we document the interaction between the code, the hardware, and the physical world?
- What does the content we serve back to future users in 50- or 100-years' time look like?
- How can AR help us to disseminate preserved content in the future?
- Can we design AR interfaces to help us interact with past technology in ways that help us contextualize quotidian usage for people in a future world where the technologies have become obsolete?