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AI Technology, Holocaust Survivors, and Human Interactions at Holocaust Museums

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ABSTRACT

Currently in use at over a dozen museums worldwide, pre-recorded interviews with individual Holocaust survivors incorporate specialized display technology and natural language processing in order to generate interactive conversations between survivors and visitors. The video recordings are prepared to answer well over 1,000 possible questions visitors might ask of them. Given that these AIs are known as narrow (non-generative) AIs - they are designed and trained to complete one specific task; they take a large amount of data and turn it into actionable information by interpreting a question and providing the best answer to that question. As a result, the answers given always convey the integrity of the survivor's personal responses to the questions she/was asked during the week-long interview period. Members of the public who "visit with" individual survivor AIs are able to interact with eyewitnesses to history to learn from those who actually experienced the Shoah. Visitors participate in a highly-personalized, inquiry-based educational interaction. This study analyzes how effective these interviews with these non-generative AIs can be. I describe here the memorable moments of interrogative persistence, miscues, and serendipity that make this project so innovative and worthy. In particular, this paper offers my findings as a result of conducting an observational study of sixteen individuals, including myself, conducting interviews with the interactive AI of Holocaust survivor and fashion designer Renée Firestone. Given that the interaction is driven by asking questions, in the course of my study, I paid particular attention to how successfully Renée Firestone's AI understood a given question; the quality of the answer that was chosen from her repository in order to respond to the given the question; and that ways in which the Q and A, the give and take of the interaction, inspired and/or stymied a given participant's time with Renée.

Keywords: AI interactive technology, Pedagogy and museum studies, Holocaust survivors

Currently in use at over a dozen museums worldwide, pre-recorded interviews with individual Holocaust survivors incorporate specialized display technology and natural language processing in order to generate interactive conversations between survivors and visitors. The video recordings are prepared to answer well over 1,000 possible questions visitors might ask of them.[1] Members of the public who "visit with" individual survivor AIs are

[1]In addition, a limited number of these AI recordings also are available to visitors to the Dimensions in Testimony (DiT) website.

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able to interact with eyewitnesses to history to learn from those who actually experienced the Shoah. Given that, these conversations are directed by the visitors to specific Holocaust museums and/or the DiT website themselves, visitors participate in a highly-personalized, inquiry-based educational interaction.

This presentation offers my findings as a result of conducting an observational study of sixteen individuals, including myself, conducting interviews with the interactive AI of Holocaust survivor and fashion designer Renée Firestone. Renée Firestone is a resolute believer in this project. Of the recording process itself, she noted, "[i]t was very difficult, but the outcome is rewarding," adding, "I think it's amazing that this will be able to be seen a hundred years from now. That's why I'm doing it" ("Renée Firestone Records").

DiT interactive recording of Renée Firestone, photograph by author.

On a bench, in a darkened room at the Holocaust Museum Los Angeles (HMLA), four to six visitors are able to sit comfortably across from the life-size computer monitor where an interactive recording of Renée Firestone sits, waiting, to be asked questions. These initmate interactions with Renée Firestone are the result of the Dimensions in Testimony (DiT) project to record survivor testimonies by combining volumetric capture along with hours-long interviews over a one-week period during which the survivor was asked over 1000 questions. This pioneering project integrates advanced filming techniques and specialized display technologies in order to create a volumetric capture of Renée's story.[2] As a result of this effort, visitors at HMLA are able to sit with Renée's AI and Firestone ask her questions that prompt real-time responses. As Michael Haley Goldman, Director of Future Projects, at the United States Holocaust Memorial Museum, explains "the system takes the natural language questions from the audience and statistically matches that question with a response that is most likely to be a response to the question."

[2]The DiT recording of Renée debuted at HMLA on 31 July 2021.

Born and raised in Uzhorod, Czechoslovakia, Renée and her immediate family members were rounded up and deported to Auschwitz-Birkenau in 1944. Her mother, Julia, was murdered in the gas chambers soon after arrival at Birkenau. Her sister, Klara, was experimented on in the camp and subsequently murdered. Her father, Mauritius, survived the camps, but died from tuberculosis soon after liberation. Renée was imprisoned for thirteen months at Birkenau before she was sent on a forced death march to Libau Concentration Camp in Germany where she was liberated by the Soviet Army in May 1945.

When I initiated work with Renée's AI, I spent over fifteen hours observing how she responds to over one hundred questions I personally wanted to ask of her. In the course of my research, I was able to ascertain the ease with which one is able to communicate with Renée and also the interrogative postures one might adopt when interacting with her.

One might ask – one probably should ask – why engage with this technology, why not just listen to an oral history Renée has given or read interviews she has given? Listening to an oral history or reading an interview she gave would follow a widely expected, chronological, narrative format: what was life like before the Nazis came?; what happened during the Holocaust?; what happened after liberation and how is your life now? Conventionally, this type of story structure, also known as narrative structure, is the order in which events are organized into a beginning, middle, and ending. There is a great deal to be said for understanding survivors' stories following this narrative rubric. Tightly controlled narrative structures are believed to ensure that all the reader's questions will be answered. In fact, given that an individual interlocutor might not – does not – ask questions in a way that follows a "tightly controlled narrative structure," successful interactions with Renée, or other interactive AIs, may be rely, in part, in already being familiar, to some degree, with her story.

During my time with Renée, I asked over one hundred questions. In reviewing my questions, I discovered they were not asked in a particular narrative order. It also became clear the majority of my questions were conceived of in clusters; my desire to get *one question answered* prompted multiple interrelated questions. For example, in order to learn that Renée's mother had been murdered soon after arrival at Birkenau, I need to ask multiple questions in order to fully understand

(1) what Renée actually knew about her mother's fate and
(2) how and when she came to that knowledge.

What I learned was deeply meaningful to me; however, due to the way I asked her questions, Renée's story "as a whole" was offered to me piecemeal.

Regarding her knowledge of mother's fate, Renée remarked, for example, that a few hours after arrival at Birkenau, she asked a *kapo* – a prisoner functionary – when she would be reunited with her parents. She noted that he responded she would rejoin them when she too went up the chimney. She did not understand what the kapo meant. Her lack of understanding was made clear when I asked, "were you aware of the gas chambers?"; she responded to

the question: "for a long time we didn't even know there were gas chambers," adding, "you smelled the smoke all the time; *you just identified it as smoke*"; that is to say, she did not associate the smoke with the burning of people's bodies.[3] Thus, for some time, the true meaning of the kapo's remark remained unclear to her.

At some point, however, she definitely became aware of the chimney's real significance. This knowledge was revealed with her response to the question: "what is your most painful memory?" Renée replied it was "watching the chimneys burn, the ashes falling all over the camp, the fires shooting to the sky, knowing what is going on in those chimneys. That haunts me even today." During my back and forth with her recording, I couldn't determine if this "most painful memory" ever was connected directly with her mother's death.

As an interlocutor, I wanted to establish the painful connection between her mother being reduced to smoke and the chimneys that were constantly billowing smoke. I asked her: "So you knew that your mother was sent to the gas chamber and later was cremated?" Her answer was queued back to her initial response that soon after arrival at Birkenau, she asked a *kapo* when she would be reunited with her parents and that she received a response about chimneys, a response that perplexed her.[4]

I never was able to get her to come to the recognition I was seeking, to say what I wanted her to say. In a real-life exchange, Renée might have confirmed or acceded to my reading of the chimneys. That is to say, she might have confirmed that part of what haunts her is not only that so many were murdered in the gas chambers and reduced to ashes in the crematorium, but, more specifically, that her mother's ashes went up that chimney and that her mother's ashes also "[fell] all over the camp." However, in this interactive exchange, that is ruled by the specific answers she gave to a specific set of questions, Renée's answers remain very much her own. That is to say, during the week Renée spent a week answering over one thousand questions that researchers thought she would receive from the visitors who would interact with her, she was never asked a question that caused her to specifically connect her mother's body being reduced to ash and smoke in the crematorium and the crematorium chimneys in Birkenau.[5] Since she never spoke specifically of the chimneys in relation to her mother then, she never will now.

[3]She also explained she never saw the crematorium buildings until she returned to Birkenau many years later. She observed wryly that she was "lucky" she never saw the crematorium buildings (the implication being that only those who were murdered ever saw the buildings personally).

[4]Renée does explain that she came to understand that her mother died soon after their train's arrival at Birkenau. She recalls seeing her mother in the other line. There were two lines at Birkenau. The line Renée was sent to meant that she was admitted into the camp and registered as a prisoner. The line Julia was sent to meant that she was sent to the gas chamber. When Renée first saw Julia, her mother, in the same line with the elderly and the very young, she assumed that her mother, along with the elderly adults, were going to be placed in charge of taking care of the babies and young children. She later came to understand that the individuals in that line all were sent to the one of the four gas-chamber-crematorium buildings.

[5]Renée is prepared for these moments when she does not have an answer. For example, one of the answers she is queued to offer is: "It is a very good question, but unfortunately I wasn't asked that question."

As I have attempted to clarify here, in order to receive a response to a given question, the answer must be one that is in the repository of responses Renée made when she was interviewed.

There are occasions when Renée may have a response to a given question; however, the question isn't recognized due to the way the question was formulated, was asked. Thus, periodically, members of the Shoah Foundation review the questions visitors ask and ascertain when/where Renée's responses could be tied to a more pertinent reply in her repository of answers.

While it is instructive to learn that, over time, her responses will be queued with greater precision to the questions visitors ask, it also is worth noting that *her answers will not be inflected by what interlocutors want to hear*. Her answers always will remain quintessentially her own. While I may have been frustrated by the fact that Renée did not make the specific connection I wanted her to make about her mother's death and the chimneys that signaled the murder of loved ones and the erasure of all trace evidence of that murder, *I also am gratified that Renée's answers are and will remain uniquely her own*.

In addition to the fact that Renée's recording may not recognize a given question; there also are times when the answer given to a specific question doesn't match the question asked. I discovered there definitely were missteps in answers provided to some of the questions I asked. Interestingly, sometimes a given response, while clearly not tied to the question, was riveting. For instance, the question: "Were you ever violated in Auschwitz?" prompted a response that was unmistakably a non-sequitur. The term "violated" must not have been used in any of the questions she was asked during her interview process; thus, there wasn't a ready-answer tied to this particular framing of the question.

One might be taken aback that someone would ask this question. The question itself may seem a violation. Were I speaking to Renée in real time, I would only ask this question if I was sure she was prepared for a question about women being raped. However, when speaking to an interactive recording one soon realizes that she need not be as concerned with observing a sense of decorum. Moreover, I think it is important that such questions are asked and answered. As Nomi Levenkron argues: "The story of the sexual assaults on Jewish women in the course of the Holocaust and World War II is a story that has been largely repressed and silenced" ("Death and the Maidens," 24). Given that their experience includes personal knowledge and/or experience of sexual violation, we must destigmatize a discussion of rape, especially if we want to learn the full story of girls' and women's experience during the Shoah. "Testimonies have become frequent sources of mainstream historical investigations," Eva Kovacs observes, "not just out of respect for the survivors but also because there are historical events for which oral testimonies and written personal memories *are our only sources*" (emphasis added, 78). The full range of information available from testimonies – even that that might be deemed indecorous – should be available to our historical investigation and interrogation.

In order to find out if she had been violated or if she knew of women who had been violated, I kept recasting the question. Did you know of anyone who

was violated? Were you raped? Did you know of anyone who was raped? Finally, I asked, Did men ever come into your side of the women's camp?" She responded with an amazingly poignant, miscued memory. She spoke of an occasion when a group of male prisoners came into the women's area at Birkenau. She recalled that all of the women ran over to see who the men were. Renée saw her father among those men and she tried to hide. "I couldn't imagine how I looked to him," she explained. She tried to hide because she was ashamed of how she looked with her head shaved and in her prisoner uniform.[6]

I was surprised by this response. This was her first sighting of her father since they arrived at Birkenau. They were separated upon leaving the cattle car. She saw her mother, briefly, in the line with the young children and the elderly; however, she did not know where her father had gone. Thus, I assumed this sighting would have been welcome given that each of them would have been able to confirm that the other was alive; however, Renée's response reveals how dehumanized the prisoners felt. Her response demonstrates how, given their sense of personal debasement, how distressing it could be to come face to face with a loved one. I am familiar with hundreds of survivor testimonies and I have not come across another account that so clearly speaks to the sense of personal shame that Renée evidences in this response, a sense of shame that couldn't be overcome by the relief of seeing her father.[7]

I also was able to engage in intimate observational study of fifteen individuals interacting one-on-one with Renée for thirty minutes to an hour and thirty minutes at a time.[8] In the course of their interactions, I carefully observed how individuals framed their questions. All fifteen participants reported finding their interaction with the DiT recording poignant and noteworthy. As one participant (Blake) noted, "Despite the fact you are talking to an AI, you still feel an obligation to ask meaningful questions."

Some participants in my study initially asked complex or compound question; such questions confounded Renée's interactive recording. For example, the questions – Do you think that other genocides are likely to happen after what you experienced in Auschwitz? or How do you feel when people ask you about the Holocaust and how do you respond to deniers? – did not produce

[6]In spite of her attempts to remain concealed, her father, Mauritius, saw her and she recalls how pained he was. With great sadness, she spoke of seeing "tears coming from his eyes and rolling down his cheeks."

[7]Staff members at the Shoah Foundation who periodically recalibrate how well Renée responds to a give question – have expressed interest in my findings and, thus, I also will be sharing with them a number of observations I made during my study of the Q and A sessions with Renée. In the process, I hope to learn more about how the recordings are recalibrated – e.g., how often someone from the Shoah Foundation reviews visitors' sessions with Renée, what criteria are used to determine that a recalibration is needed, what forms a recalibration/revision might take.

For example, I found Renée's waiting stance puzzling as her demeanour isn't as inviting as it could be and thus I am hoping they might adjust the posture she assumes in order to make her appear more available to the interlocutors' questions.

I also am hopeful that this narrative about seeing her father will be clearly tied to questions regarding her memories of her father. If you ask – did you see your father in Auschwitz? – you will hear this story; however, you need to ask exactly this question in order to call up this specific narrative.

[8]Only Steve, one of the participants, interacted with Renée for thirty minutes (everyone else spent much longer with her). Steve noted he would have spent longer; however, he had another appointment and was forced to leave.

the expected results. The first question about Renée's general understanding genocides in general produced a response about her "most emotional moment" in Birkenau and the second question about being asked about both the Holocaust and deniers of the Holocaust produced the response "I still don't catch what you are asking me."

At HMLA, there is a sheet of helpful questions offered for users. The sheet includes the following instructions:

> Holocaust Museum LA invites you to ask questions, interact with and learn more about the Holocaust and from her own words. If you need some help in thinking of some questions to ask Renée, below you'll find a list of suggested questions organized by student age, the answers to which we hope you'll find particularly informative, moving, and inspiring. Be sure to speak loud and clear and *keep your questions short and direct* so that Renée can understand and respond to you. (emphasis added)

I discovered that if they initially were unsuccessful asking questions,[9] participants turned to the sheet because they realized there were ready responses to the questions listed there.

They might have relied solely on the suggested questions except that they knew I was interested in hearing what questions they personally would ask. Thus, my presence may have prompted them to be more resilient in asking questions.[10] Once they had more success, they became more invested in crafting their own questions. However, for some of them, if their questions produced too many negative results, the sheet became a crutch to return to.

In addition to learning that one needs to keep questions "short and direct," as one participant (Mary) in my study noted, it is difficult to build on questions. In particular, participants learned the interlocutor, needs to take

[9]Interlocutors varied; however, many persisted and asked clusters of alternate questions of their own making because they sought an answer to a question that personally intrigued them.

In 2022 when you asked questions of Renée you used a microphone that activated the DiT recording. Thus, if two or more people were in the room, as long as they didn't engage the microphone, they could talk with one another regarding how to frame a question. The microphone system, however, was clunky and HMLA has dispensed with it. As of 2023, the DiT recording is sensitive to anything that is said in the room. To all intents and purposes, Renée reigns supreme in the room as she assumes that all verbal exchanges are directed to her. Thus, if you try to negotiate how best to craft a question, she assumes you are directing a question at her.

If she isn't able to hear or understand the question you are trying to frame, she will give you one of her stock responses: "It is a very good question, but unfortunately, I wasn't asked that question" or "That's a very good question for a historian" or "I don't have a comment on that" or, her most common response, "I still don't catch what you are asking me. Would you ask me another question?'

When I first began my work with Renée, there wasn't a helpful set of questions included in the small gallery space. Now that they have been included in the gallery, participants have found them a useful guide, especially when frustrated by asking questions that remained unanswered.

[10]The Hawthorne effect may have been operative here. As Gustav Wickström and Tom Bendix argue,

[t]he "Hawthorne effect" is often mentioned as a possible explanation for positive results in intervention studies. It is used to cover many phenomena, not only unwitting confounding of variables under study by the study itself, but also behavioral change due to an awareness of being observed, active compliance with the supposed wishes of researchers because of special attention received, or positive response to the stimulus being introduced. (363)

care that all questions have clear referents. For example, a follow-up question – What happened to you afterwards? – will prompt one of Renée's rote responses regarding not understanding the question (e.g., "I still don't catch what you are asking me"). "Afterwards" does not offer adequate information. Had the question been phrased, What happened to you after the train arrived at Auschwitz-Birkenau? or What happened to you after liberation?, Renée would have had a response queued to this question. Stephen Smith, the USC Shoah Foundation Executive Director and the pioneer of this project, explains that the DiT recordings do "*not yet* have the ability to track the conversation," clarifying, "[i]f you ask about 'them'," the recording would not "necessarily know which 'them' it is" (qtd. In O'Brien).

However, it is important to note, there are at least two exceptions to this finding. Two reflexive pronouns clearly are understood to carry a default referent. If you ask – "Did you and your husband ever talk about it?" or "What did you learn from it?" – *it* is understood as referring to the Holocaust. If you ask – "What happened there?" or "Did you make friends there" – *there* is understood as referring to Birkenau.[11]

In 1961, Nathan Alterman astutely observed that the testimonies of Holocaust survivors, transformed "unknown strangers" into "a basic and firm substance whose character, image, and horrible memories beyond life and nature, constitute an ineffaceable part of the character and image of the living people that we belong to" (4). Today, AI technology transforms unknown survivors not only into "basic and firm substance," but into intimate substance who become part of the living people we belong to. The pedagogical promise of this technology executed through the Q-and-A that takes place between the visitor and Renée is realized through the creativity and persistence of one's questioning, and is accomplished by transforming Renée into an intimate of substance. For Stephen Smith, this pedagogical promise is realized because DiT ensured that this activity is all about you: "It's about you. It's about what you want to know…. And that is where the deepest learning takes place" (Smith).

That said, the engagement with Renée I have described in this paper will change in the near future. Currently a large gallery is being built that will house Renée's interactive recording. At long last, entire groups of school-age children who visit HMLA on field trips will be able to interact with her. However, their interaction probably will be different. Rather than crafting and asking her questions on an individual basis, visitors, if they ask questions at all, will do so by offering their questions to a docent, a docent familiar with this technology who will know how to craft a given question in order to secure the best response from Renée's repository. The narrative interaction with Renée will be more carefully curated. The engagements no longer will be "all about you" and the memorable moments of interrogative persistence, miscues, and serendipity I have described no longer will be something to opportunely anticipate.

[11]I would add that each time Renée responded to either of these types of questions the participant and I looked at one another with surprise as we weren't expecting this moment of connection because quickly after asking the question, the participant understood she/he hadn't framed the question clearly.

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