

Closing the Digital Divide

An interview with Comcast Chairman & CEO

BRIAN L. ROBERTS

When Everything Changed

Holocaust survivor and filmmaker

BRANKO LUSTIG

Scholarship in a Digital World

New modes of publishing

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PastForward

Summer 2012



New Dimensions

Technology & Testimony

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“The question is, ‘What can we do to improve education so the next generation has a better chance of success?’”

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Meet the authors of this issue of **PastForward**



page 29 Chief Technology Officer Sam Gustman (standing) with Georgiana Gomez, Video Archive and Production Specialist

PastForward brings together many voices around issues related to the educational and scholarly use of genocide eyewitness testimony. Whether survivors or their descendants, teachers or students, scholars, historians, or filmmakers, the variety of their experiences and opinions is a sample of the lively milieu of critical thought and discourse emerging around the USC Shoah Foundation Institute's Visual History Archive.

Mills Chang is a Programmer Analyst for the USC Shoah Foundation Institute. He was born in Taiwan and earned his M.S. in computer science at USC. Chang is the former Senior Software Engineer for IntraTel, and a former System Analyst for GlaxoSmithKline.



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Jan Hajič is a full Professor of Computational Linguistics and the Head of the Institute of Formal and Applied Linguistics at the School of Computer Science of the Charles University in Prague, Czech Republic. His interests cover morphology of

There, he also earned an M.S. in electrical engineering in 2004. His B.S. in electrical engineering is from Technion-Israel Institute of Technology (1998). His research focuses on combinatorial optimization and graph theory-based methods for pattern recognition in multi-dimensional data sets. This includes environmental monitoring, traffic data, sensor networks, and multi-spectral images and videos.

Sam Gustman is the Institute's Chief Technology Officer. He has been with the organization since 1994, and in 2006 he oversaw the transfer of the Visual History Archive to USC. He is responsible for the archive's operations and preservation, and his office provides archival access and technical support for institutions around the world. Gustman is the inventor of 11 patents on digital library technology for the Institute, and he has been the primary investigator on National Science Foundation research projects with a cumulative funding total of more than \$8 million.



Jan Hajič is a full Professor of Computational Linguistics and the Head of the Institute of Formal and Applied Linguistics at the School of Computer Science of the Charles University in Prague, Czech Republic. His interests cover morphology of

Contributors

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inflective languages, machine translation, deep language understanding, and the application of statistical methods in natural language processing in general. He also has extensive experience in building annotated language resources. His work experience includes both industrial research (IBM Research Yorktown Heights) and academia (Charles University, Prague, and Johns Hopkins University, Baltimore, Maryland, USA). He has published more than 80 papers, and he has been the PI or Co-PI of several national and international grants and projects.



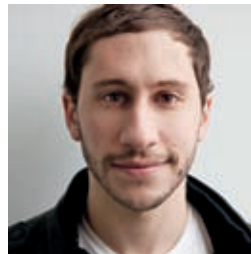
Michael Hintze recently graduated summa cum laude from Macaulay Honors College with a B.A. in mathematics and computer science. As a user experience designer at Nokia, he created state-of-the-art web and mobile experiences for Nokia Store. Hintze is currently working on defining the user experience for e-learning applications for the Apollo Group and completing his master's in Information Management Systems at the University of California, Berkeley.



Pavel Ircing is an Assistant Professor at the Department of Cybernetics and a researcher at the Department of Interdisciplinary Activities, University of West Bohemia, Pilsen, Czech Republic. His research interests include language modeling and information retrieval, especially in the context of large audio-visual archives. He was deeply involved in the MALACH project, both in the development of the automatic speech-recognition systems and the consequent information retrieval engines. He currently participates in several projects dealing with automatic processing of audiovisual archives, including the project aimed at improving retrieval performance in the Malach Visual History Centre in Prague.

Ali Khodaei is currently working toward his Ph.D. in computer science at the University of Southern California, where he is a research assistant working on web search, information retrieval and geospatial databases. He received his B.S. in computer engineering in 2003 and his M.S. in computer science from the University of California, Irvine, in 2006. He has worked as a researcher/developer/manager for several companies and research institutes, including Microsoft, Samsung R&D Center, and VESystems.

Scott Lindenbaum is the Co-Founder of Broadcastr, an iPhone/Android/web application that delivers rich media to smartphones based on location. The user's movement through the world acts as a search query, serving up relevant, entertaining media specific to their location. For 10 years Scott was a half-pipe snowboard competitor sponsored by Burton Snow-



boards. He holds an M.F.A. in creative writing from Brooklyn College, where he studied under Pulitzer Prize-winner Michael Cunningham. Broadcastr has garnered national coverage on CNN, MSNBC, and FOXNews, and has appeared in the *New York Times*, *Wall Street Journal*, *Washington Post*, *Wired*, and in the Huffington Post and numerous other outlets.



Heather Maio is Director of Conscience Display, an exhibition company that specializes in Holocaust-related exhibits. She has produced several traveling and permanent exhibitions on the Holocaust. Maio specializes in intergenerational issues with a particular emphasis on survivors, their families, and their legacy.



Contributors

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and an editor for the MacArthur-supported *International Journal of Learning and Media*. McPherson is author of “Reconstructing Dixie: Race, Gender and Nostalgia in the Imagined South,” among other works. She is working with colleagues from other universities and with academic presses and archives to explore new modes of scholarship for visual culture research.

Freddy Mutanguha, who lost his parents and four sisters in the 1994 Rwandan Tutsi genocide, is Director of the Kigali Genocide Memorial and former Secretary General of IBUKA, the umbrella organization representing Rwandan survivors. A graduate of the Kigali Institute of Education, Mutanguha has become a leading voice for human-rights education in Rwanda, lecturing internationally about the effects of the genocide and post-conflict reconstruction. In 2011, he gave his testimony to the USC Shoah Foundation Institute.



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Mark Rothman is Executive Director of the Los Angeles Museum of the Holocaust. Rothman earned a B.A. from Columbia University and an M.F.A. from the USC School of Cinema-Television. After a career as a video producer/director, Rothman served as

Holocaust Services Advocate at Bet Tzedek Legal Services, helping survivors to obtain reparations and restitution. Rothman has held community leadership positions with organizations that include the Center for Nonprofit Management, the Federation of Jewish Men’s Clubs, and B’Nai- David Judea Congregation. Rothman conducted approximately 50 USC Shoah Foundation Institute interviews.



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NEW DIMENSIONS

Technology & Testimony

A basic truth about technology: Its power depends on its purpose. *By Stephen D. Smith*

A Means to an End. We could dedicate an entire issue of *Past Forward* to the whirl and whistle of the computer systems, software architecture, and web applications the USC Shoah Foundation Institute uses to disseminate the testimonies of Holocaust survivors and other witnesses. In fact, there are as many programmers, network specialists, and education technologists working with the Institute as there are historians, social scientists, or experts in the humanities. But technology is not an end itself. What's really interesting is how the content of the testimonies is being optimized, through emerging technologies and new media, to become the worldwide educational resource it was always intended to be.

In the following pages, we'll read about 3-D testimonies and virtual spaces where Holocaust survivors' memories will guide learners through the fourth dimension of time. Brian L. Roberts, Chairman and CEO of Comcast, will share his vision for bridging the "digital divide" in education—a vision that put testimony within reach of millions of Comcast viewers through the latest iPad and Video On Demand technology. We'll learn about the advantages that online publishing platforms will bring to testimony-based scholarship, and about researchers in the Czech Republic who are pioneering a voice-recognition approach to searching the Visual History Archive. We'll even hear about an app that lets you stand in historic locations and learn from survivors who stood there before.

When a researcher or student searches the Visual History Archive, tens of thousands of computing hours lie behind that search. This suggests a basic truth about technology: Its power depends on its purpose, and you are about to meet some of the people who specialize in the highly technical aspects of audiovisual scholarship and education. My challenge to them was to discuss their work without baffling us with technical jargon. I think they've done a good job. I hope you'll agree.

To all those team members, interns, and volunteers who have spent long hours glued to computer screens so that people around the world can reach deeper into the testimonies of Holocaust survivors and other witnesses, thank you; your skills help create humanity through testimony. ■



Branko Lustig

I REMEMBER THOSE DAYS when the Shoah Foundation first started. When I was on the set of *Schindler's List* with Steven Spielberg, and other survivors were speaking to him; I could see how determined he was to ensure that their life histories were taken for the future, and before it was too late. As the testimonies came in, I would spend hours and hours each day reviewing them, especially those in Croatian. I was totally absorbed, as I could see history coming alive before my very eyes.

Today I am interested in what all of this means for the future. As a survivor of the Holocaust, I want the Shoah Foundation Institute to push the boundaries of technology not for the sake of it, but to make sure that we fulfill the promise we made to the survivors in the Visual History Archive. We always said that the testimonies would be kept in perpetuity, which requires huge technological effort. We also said that we would teach from them for generations to come, which in a world which is wired for the Internet, means bringing the Visual History Archive directly to their screens.

As a filmmaker, I am interested in how we communicate the story of the Shoah. It is clear to me that the next generation will tell their own story in their own words with whatever means they have at their disposal. Our job is not to dissuade them from using their voice and the technology at their fingertips but rather to encourage them to do it with care, with dignity, and humanity. ■

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Voices from the Archive

Nearly 52,000 Holocaust survivors and other witnesses gave their testimonies to the Institute, from 56 countries and in 32 languages. The Visual History Archive is filled with more than 100,000 hours of unique life stories. It would take more than 12 years to watch every person's testimony, and it would be impossible to share all their stories in *PastForward*. Here is a glimpse from the Visual History Archive into the life of survivor Branko Lustig, who is a member of the Institute's Founding Advisory Committee. We invite you to view his entire testimony on our website at dornsife.usc.edu/vhi/voicesfromthearchive.

When Everything Changed

A Holocaust Survivor Remembers

Branko Lustig

Born June 10, 1932, Osijek, Yugoslavia
Interviewed 1999, Los Angeles, California

LOS ANGELES, CALIFORNIA 1999. Film producer Jerry Molen is sitting with his friend and fellow producer of *Schindler's List*. A Shoah Foundation videographer is recording.

"Can we have your name, please?" Jerry asks. "Branko Lustig," the man replies. "L-u-s-t-i-g."

His story began in 1932, in Osijek, Yugoslavia. "I remember the town quite well," Branko smiles. He recalls that his father, Mirko, was the head waiter in a big hotel, and that his mother, Vilma, sometimes threw parties for his friends from elementary school. Her parents also lived in Osijek; Branko remembers going to their house on Friday nights for Shabbat dinner.

"We had a good life," he says.

Two months before Branko's ninth birthday, the Axis powers invaded Yugoslavia. Osijek fell into the hands of Ustaša, a Croatian nationalist group and Nazi puppet regime. "They were very antisemitic. They started killing Jews immediately, and Serbs. There were a lot of Serbs in Osijek."

As persecution of Osijek's Jews intensified, Branko began overhearing his parents talking late into the night about whether they should leave town. Then his father was arrested. Though his release was secured with the help of friends, the Lustigs knew they could no longer stay in Osijek.

One night, Branko and his parents slipped across a river in a small boat and journeyed to Čakovec, the Hungarian-occupied city where Mirko's mother lived. The situation was purportedly better for Jews in Čakovec, and at first the rumors seemed true; Branko's parents were able to enroll him in a local Catholic school, and he remembers being able to attend synagogue. But he was bullied at school, and the maltreatment he suffered grew increasingly worse; meanwhile, anti-Jewish measures were making life more and more difficult for his parents as well. His father was required to report to the police on a weekly basis, and after one such appearance in 1942, Mirko did not return. Only after the war would Branko discover what had happened to his father.

In late 1942 or early 1943, the police came for Vilma and Branko. They were deported to Nagykanizsa in Hungary, and then sent to the Wiener Neustadt con-

centration camp in Austria. "There were Jews from all over," Branko remembers.

One winter day, the prisoners were loaded onto a train bound for Auschwitz.

When they arrived and the men were divided from the women and children, Branko—who was tall for his age—was put in line with the men. Vilma had said that her 11-year-old son was in fact 16.

"My mother went on the other side. And when I turned around, she wasn't there anymore."

Branko didn't witness many of the horrors of Auschwitz; his first encounter with death occurred later that winter, when he was sent to a work camp in nearby Fürstengrube. "When we arrived there," he says, "everything started to change."

That first day at Fürstengrube, Branko and the other new arrivals were lined up in front of a gallows where six ropes hung. After about three hours, six prisoners were brought forward.

"They shouted in Yiddish, 'Don't forget us! Remember us!'" Branko says, recalling their last words. It was the first time he saw someone die.

"And [they] gave us some food, and I was eating this food beside the gallows."

Branko was put to work in a coal mine, leading a blind horse that hauled water for the laborers, then hauling bricks and cement. Beatings were commonplace; "There was always some Capo who beat you up if you [went slowly]." Prisoners who became too weak or ill to work were taken away. "And from these selections, everybody knew...that the tracks are taking them to be killed."

For Branko, one of the worst experiences occurred on the evening of Yom Kippur. It was raining, and the prisoners had been gathered together in a roll call area. While one prisoner was beaten, another was forced to play on a fiddle the melody of the Kol Nidre prayer. Branko remembers how the other prisoners wept. "My religion stopped somewhere on this Kol Nidre night," he says, "on this Yom Kippur night...I saw those people standing there...under this open sky. This guy was playing this prayer, and nothing happened."

The hardships of Fürstengrube took a heavy toll on Branko. In the spring of 1944, he became very ill and was selected for removal from the camp. "I tried to escape," he tells Jerry. "And I was running through the camp, but in the camp there was a group of Jews; they were called the 'fire brigade'...but they were also police. And I remember two of them were running behind me. They [caught] me and put me on the truck."

Branko was transported to Auschwitz II-Birke-

nau; upon arrival, he escaped from the truck that brought him from Fürstengrube and mixed in with other Jews who had arrived that day. "I saw this enormous field, and lots and lots of barracks...wires; this terrible smell of the camp." He remembers seeing the chimneys of the crematoria. "There was an enormous line of naked people...it was terribly cold. It was raining."

Then, for some reason—to this day, Branko does not know why—he and the other prisoners who arrived that day were taken to Auschwitz I, where he was given a number. "My number is A-3317," he tells Jerry; the videographer captures the number still visible on his forearm.

Summer, 1944. "That was a very hard summer," Branko remembers. He saw people being beaten to death, even crucified and left to hang as a warning to others. As time wore on, Branko became known as "Benjamin"—the youngest of biblical Jacob's sons—because he was so much younger than others in the camp. He was beaten regularly by his captors; he was mistreated by older prisoners as well.

Months passed. As the days grew colder, food became increasingly scarce; prisoners were often given nothing to eat but a scrap of salami or a piece of a frog. That winter, the nights were filled with the sounds of battle. The Russians were coming.

In January 1945, Branko and the other prisoners were forced to march from the camp.

"We were marching all night. And there was snow falling, and there was a lot of shooting behind us," he recalls. "Some people fell down, and I remember they were shot immediately." They arrived at a train station, where each car was loaded with more than 120 prisoners, each of whom was given only a scrap of bread to sustain them for the three to four days it took to reach the Mittelbau-Dora labor camp near Nordhausen, Germany. There, Branko was sent to work in an underground factory; but the Allies were closing in, and the prisoners were soon relocated farther from the front—this time to Bergen-Belsen.

"This terrible stink came from the camp," Branko says of the place he describes as "Dante's Inferno," where more than 50,000 people died. He contracted typhus and began sleeping under the barracks at night, afraid that if he couldn't get up in the morning, he'd be taken out with the dead to be burned. "I was at the end of my physical and spiritual forces and energy."

Decades later, sitting with Jerry, Branko re-

turns to those last days and nights at Bergen-Belsen. "We saw fire. The sky was red. And we heard bombardments and we heard planes, and everybody knew, 'It's not long. Any day now, we will be liberated.'" By then the Nazis had stopped coming to the camp altogether. Dying of thirst, the prisoners began boiling and drinking their own urine. "This was the camp where Nazi organization failed."

In April 1945, British Armed Forces liberated Bergen-Belsen. "I was lying by a window," Branko remembers, "and I was in a delirium.



Branko Lustig as a child

I had a high fever...I was thinking that I'm dying—that I'm dead already." As he lay there, he heard music and saw what he thought were angels: a group of Scottish pipers.

Branko and his mother were soon reunited; upon her arrival at Auschwitz, Vilma had been immediately transferred to a munitions factory in Germany, where she had worked as a specialist for the duration of the war. When Branko was well enough to travel, they returned to Čakovec in the hope that Mirko might be waiting for them.

"There was only one uncle," Branko remembers, "and an empty house."

Soon after their return to Čakovec, Vilma received an urgent message from a man on his deathbed. She found him with a priest at his side; he wanted desperately to tell her something about her husband.

It had happened only a few months earlier,

in a Hungarian labor camp. During roll call one day, one of the prisoners laughed. An officer overheard and demanded that the culprit identify himself. Nobody did.

The officer threatened to kill every second person in the lineup until someone confessed. At that point, a man stepped forward and the officer shot him. It was Mirko.

Then the dying man told Vilma that he, not Mirko, was the one who had laughed.

"And that's how my father died," Branko says.

He and his mother left Čakovec and relocated to Zagreb. Branko finished school and decided to study chemistry, until his life took an unexpected turn: He discovered acting. After graduating from the Academy of Dramatic Art, University of Zagreb, in 1955, he began working on film shoots, learning on set and working his way up the ranks. It was the beginning of a career in film production that has spanned decades and earned Branko two Academy Awards, including his first, for *Schindler's List*.

Branko speaks about his career; he talks about his wife, Mirijana, and about proposing to her while working on *Fiddler on the Roof*: "The whole crew was at the wedding." He smiles when Jerry asks him about their daughter, Sara, and reflects on what having a child means to him as a survivor. Soon their conversation turns to Branko's return to Auschwitz, this time as a filmmaker.

"I never had that connection with real death in Auschwitz," he says. "But when I entered Birkenau and came to this gate and saw this big, enormous emptiness, it was again winter. And I remember this moment; I felt this thing; I felt that I am hungry again, and I felt the stench, the smoke, without seeing it...I was crying. I couldn't get through."

More than two hours have passed since Branko and Jerry first sat down together. Mirijana will soon join her husband on camera, and Branko's testimony will close with still images of the photographs, postwar artifacts, and awards that also tell the story of his life. But first, Jerry asks him how the Holocaust has affected his perception of humanity.

Branko replies that he has been able to forgive.

"I hope that people will one day love each other and that this will never happen again; that's why I was so involved with this Shoah project. Because I think that these tapes—what we've made—they will help the people to love each other and to forgive...and to live, somehow, in a new world." ■

Testimony on Location

By Scott Lindenbaum

You are always somewhere. By using *Broadcastr* to watch LOCATION-SPECIFIC testimony on your mobile device, history and memory will meet you while you're there.

Scott Lindenbaum is the Co-Founder of *Broadcastr*, an iPhone/Android/web application that delivers rich media to smartphones based on location. For a full biography, see page 3.

IN CHAPTER ONE of the first book of *In Search of Lost Time*, Marcel Proust's modernist epic about how we make and access memory, the narrator is having a madeleine with his tea. The experience of dipping the small French cake into the tea triggers a wave of

memories that takes him all the way back to other unremembered moments of his childhood. After 30 pages of reflection and remembrance, we return to the narrator, madeleine still in hand, his tea just beginning to cool.

Proust began his novel in 1909, and it would not be an overstatement to say that his investigation of involuntary memory became a critical concern in 20th century Western culture. Involuntary memory is the idea that recollection is often triggered by quotidian cues stumbled upon during the course of ordinary life. Memories leap out at us. Taken in the context of collective memory, or cultural history, particularly the tragic variety, what could be more important than remembering?

I had an idea. I wanted to publish Holocaust survivor testimony in a completely new way: to the location it describes. Members of my extended family had given testimony to the Institute; they had jumped from trains in Poland, and I thought it would be incredible to put voices like theirs back at the sites where these events had happened. What if visitors to these meaningful locations could tap into that testimony? What if the emotional and historical context of the place could come from the survivors themselves?

Broadcastr, a mobile app I'd just created for the iPhone and Android, could help make this concept a reality.

Broadcastr creates intimate and immersive experiences by unlocking photos, audio, and video relevant to where

you are. It links multimedia to locations and turns your smartphone into a guide to the world.

With Broadcastr, the Institute would be able to upload testimony and associate it with historical sites. For example, if someone with the Broadcastr app visited Auschwitz-Birkenau, testimony of those who had survived the camp could start playing automatically based on the visitor's location. And if someone couldn't travel to Poland, they could take a virtual tour on the Broadcastr website. Either way, it would be possible to give very specific context to all the memories in the Visual History Archive.

The project is now a reality. More than 50 testimonies from survivors of Auschwitz-Birkenau are on Broadcastr.

The USC Shoah Foundation Institute is a Broadcastr partner, but anyone can contribute stories to our ever-growing memory map. It's a social technology, but I'm not a technologist; the idea for Broadcastr came out of my background as a writer, teacher, and storyteller.

To return to Proust: Remembering means finding ways to remind ourselves to remember. The phrase "never forget" is the inverse of this same idea. We create rituals (out of which grow traditions) to ensure that our individual and collective memories are regularly brought to the forefront of our thinking. Sometimes these



triggers take the form of symbols, like the Seder plate, or a crucifix. Time of day or time of year can be powerful triggers, particularly for personal memory.

How we remember, and the little reminders that keep certain events fresh in our memory, have undergone a shift in the digital age. Today, we have public, social, and digital systems of storage organized by theme, time, and relevance (most of us call this the Internet). Google helps us sort through all this information. Facebook reflects the state of content organization and its relationship to personal memory almost perfectly. The famous Facebook wall, where all the media related to a user is publicly stored, is no longer a wall at all but a timeline of media.

If we agree that this is the digital age, then perhaps we are at the dawn of its mobile epoch; computing on smartphones and tablets means computing on the go. A new factor has become relevant to how we store and access media that is inexplicably linked to our process of creating and triggering individual and cultural memories. That new factor is location.

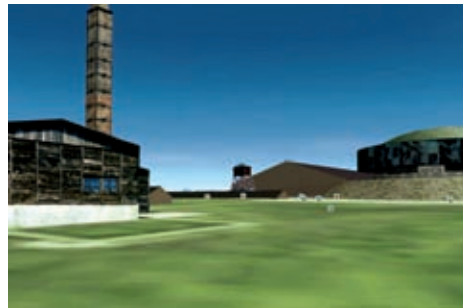
More and more people are walking around with memory devices in their pockets and backpacks, and these devices know where they are at any given moment. Media can be delivered based on locative criteria. That media can help us remember to remember. It can connect us more deeply to the world around us. And in the case of the USC Shoah Foundation Institute, it can bring voices to spaces that can be difficult to contextualize, such as those that were concentration camps during the Holocaust.

Historical documentation has always taken into account location. However, using GPS technology and cell-tower triangulation, we are able for the first time to take into account where a person is at any given moment and deliver to them relevant media based on this information, in turn creating a more meaningful, intimate, and immersive experience of place. In the terrestrial world, we already attempt to do this by erecting monuments, putting up informative plaques, publishing pamphlets and maps, and by preserving historical sites. Now imagine if every place on Earth could have associated with it an archive of media content stored invisibly in the air and accessible at any time. In this scenario, which Broadcastr seeks to make a reality, the only search input necessary for having a relevant, powerful experience is simple: You just have to be somewhere. And you are always somewhere. Now history and memory will come to meet you while you're there. ■

Geo-Immersive Learning

By Cyrus Shahabi, Ali Khodaei, and Barak Fishbain

How the Visual History Archive is helping COMPUTER SCIENTISTS pioneer a new technology—and what that technology could mean for how we *explore history*.



4-D “virtual spaces” are 3-D buildings and spaces that change with time, making a fourth dimension. For full biographies of Cyrus Shahabi, Ali Khodaei, Barak Fishbain, and other contributors to this issue of PastForward, see page 2.

ONE OF THE MOST interesting developments in education is the growing use of 4-D interfaces. To clarify, 4-D “virtual spaces” are 3-D buildings and places built up from original maps and plans, which change with time, making a fourth dimension. It means that if you view the space as it was in 1940, it will be different from 1944 and very different from the current day.

These computer-generated “virtual spaces” enable immersive learning experiences. This might sound like something from a video game, and that is not without reason. The architecture used to generate lifelike screen-based images was pioneered by the gaming industry. Nonetheless, the technology’s potential applications go far beyond entertainment, and can include the testimonies in the Institute’s Visual History Archive.

Our research, conducted at the Integrated Media Systems Center at the University of Southern California, introduces a new computing concept, called Geo-Immersion. This was invented and is being developed at the center, which is on the same campus as the USC Shoah Foundation Institute. Geo-immersion is the capture of real-world spaces into a computer-generated replica of the real world. Using geo-immersion, we aim

to place the testimonies of Holocaust survivors within a 4-D space, such as an interface that would allow a student or researcher to “walk” through a simulated location—a historical site, for instance—observing how it looked 70 years ago compared to how it looks today, all while listening to relevant testimony about the location and the events that occurred there.

The user will have a totally different experience as they try to understand the testimony in relation to places, rather than as a whole life history. Geo-immersive spaces not only create a different learning environment but also bring out information that might have been overlooked through conventional research methods. And in cases where multiple witnesses described a specific location, their testimonies could even be linked together to provide additional layers of context.

Studying Holocaust testimony in 4-D depends on many new technologies. These include the systems to build the geo-immersive space, place the testi-

monial content within the space, and present it in an interactive and searchable fashion. To illustrate just how complex the challenges are, consider that we need to use text, space, and time features to “rank” the testimonies so that searches yield the most relevant results. Keyword-based ranking is a well-studied problem by companies that design search engines, but ranking based on time and place is an open problem yet to be solved.

Geo-immersive spaces create a different learning environment but also bring out information that might have been overlooked through conventional research methods. And in cases where multiple witnesses described a specific location, their testimonies could even be linked together to provide additional layers of context.

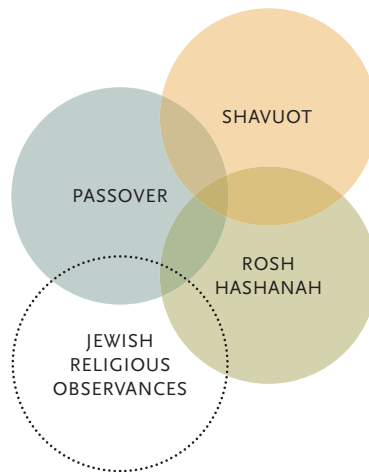
Developing a 4-D interface to the testimonies means first dealing with these problems. To tackle them, we have designed a hybrid index structure and two algorithms to index and rank information, using data from the Institute’s Visual History Archive to test their validity. Furthermore, the question of how to place content like the testimonies into a historical space was used to introduce the difficulties of such problems to young scientists. Graduates were tasked with building a prototype search engine that required students to address all aspects of the problem. Studies like these will not only advance the computer sciences as students learn to think about such problems; they will also transform how we study the Holocaust and conduct research in the 21st century. ■

For further information see: Ali Khodaei, Cyrus Shahabi, and Chen Li, “Hybrid Indexing and Seamless Ranking of Spatial and Textual Features of Web Documents,” DEXA 2010; developer.yahoo.com/geo/placemaker/; code.google.com/apis/maps/

A Surprising Quantum

By Michael Hintze

The Visual History Archive contains a vast amount of INFORMATION. We hoped to help organize it and uncover novel ways to *connect* the stories within the testimonies.



The above diagram illustrates an indirect relationship between search terms. Shavuot, Passover, and Rosh Hashanah were often spoken about together, while only the latter two terms appear frequently with the term Jewish religious observance. For researcher Michael Hintze’s biography, see page 3.

EVERY SUMMER, the UCLA Institute for Applied Mathematics hosts a program called Research in Industrial Projects (RIPS). RIPS allows undergraduate students to work on real-world research projects that are sponsored by industry or the public sector; I was part of a team that worked on finding new ways to search and explore the USC Shoah Foundation Institute’s Visual History Archive.

Our main contacts at the Institute were its Chief Technology Officer, Sam Gustman, and Programmer Leo Hsu. Sam and Leo not only gave us access to the data in the Visual History Archive; their vision for what the project could accomplish and their advocacy for end users helped guide us from the very beginning.

Our primary goal was to find new ways to search and explore the archive. When I think of the challenge we faced, I’m reminded of Jorge Luis Borges’s short story “The Library of Babel,” in which an infinitely large collection of books is unusable because no method exists for working through the glut of information. Like Borges’s fictional library, the Visual History Archive contains a vast amount of information; we hoped to help organize it and uncover novel

ways to connect the stories within the testimonies.

For purposes of information retrieval, various methods have been developed to search for documents, for information within documents, and for metadata about documents. My team worked on ways to “relate” (group and organize) keyword data to support information retrieval. With only six weeks to conduct our research, complete our project, and submit a final paper on our process and findings, the biggest challenge we faced was deciding how to make the

most effective use of time. We did succeed in developing two models for relating keyword data: one for clustering testimonies with a common theme, and another for examining the relationships between keywords to make it easier to find testimonies with common narratives—for example, multiple testimonies that describe a particular event—or keywords that are indirectly related, such as Shavuot and Rosh Hashanah.

As a mathematician, working with the Institute's Visual History Archive was interesting because of the sheer amount of information contained in the testimonies; it's amazing how much opportunity there is for mining them to discover trends and information that was always there but was hidden. And as a young professional, I was recently able to take what I learned about information retrieval and apply it as a researcher for Nokia. On a more personal note, the testimonies were compelling in their own right. Listening to survivors and other witnesses tell their stories is moving, and I was very proud to contribute to research that has the potential to touch so many people. ■

From the POV of a Programmer

By Mills Chang

Until I came to the Institute, my focus was on **NUMBERS** and **DATA**. Now it's about *human experiences*.

Mills Chang, a Programmer Analyst for the USC Shoah Foundation Institute, was born in Taiwan and earned his M.S. in computer science at USC. For a full biography, see page 2.

STUDENTS IN TAIWAN learn about the 1937 Nanjing massacre but not much about the Holocaust. I remember that there was a chapter in our history books. That was it.

I'm a software programmer for the USC Shoah Foundation Institute. When the Institute

recruited me in 2008, I already knew about *Schindler's List*, but I had no idea that Steven Spielberg had been inspired to start an organization dedicated to preserving survivors' memories, or that programmers like me would have such an important part to play in its educational mission.

At the pharmaceutical company where I worked in Taiwan, my focus was on the numbers; at the communications company in the United States, where I spent 16 years before coming to the Institute, it was all about the technology. But at the Institute, even though I'm still writing software (you can't imagine how many lines of code I've written in the past four years), our focus is on human experiences—the life experiences of Holocaust survivors and other witnesses, and the learning experiences made possible through the educational use of their testimonies.

As you might imagine, I spend a lot of time in front of a computer screen. One of the technologies I work on is the Visual History Archive, which is accessible online at nearly 40 institutions worldwide. I also spend a lot of time working on the Institute's newest software program, called IWitness, which we designed specifically for high schools and middle schools. IWitness will let teachers and students access 1,000 testimonies over the Internet.

Keeping the testimonies off the Internet would be like locking them in a closet. The memories of what survivors experienced, and their message for younger generations, would be locked away as well. But because of the sensitive nature of testimony, we have designed IWitness to be a secure, teacher-monitored environment.

Much of the work I've done on IWitness has been based on user feedback. In addition to working with experts to ensure that the technology is suitable for young people, we tested IWitness in classrooms across the United States to gather essential input from teachers and students; one of my responsibilities has been to ensure that IWitness reflects this input. As a developer, I want the program to run smoothly, and I want everything to function as users expect. But when I see a teacher use IWitness for the first time—when I see their excitement—that's my idea of success.

I may not have learned much about the Holocaust when I was a schoolboy in Taiwan. But other students will, and it will be through technology that puts survivor testimony within reach of the world. ■



PHOTO BY KIM FOX

As digital publishing transforms scholarship as we know it, media-rich resources like the Visual History Archive will become more important than ever.

Scholarship *in a* Digital World

By Tara McPherson

ILLUSTRATION BY BRIAN STAUFFER

WE LIVE IN A RICHLY VISUAL WORLD. From the gigantic pulsing screens of contemporary urban spaces to the small mobile screens we carry around in purses and pockets, modern culture is saturated in images. While such media have been ascendant since the early days of photography and cinema, the digital revolution wrought by the web has greatly accelerated our immersion in a visual world. The online photo-sharing site Flickr recently reported that it hosts more than 6 billion images, while the video site YouTube claims that an average of 48 hours of video is uploaded there each minute. These popular sites are joined online by many other institutional websites and archives, including those hosted by museums and universities. The USC Shoah Foundation Institute houses important content that com-

plements the vast array of visual sources available on the Internet. University researchers who work within this media-rich world are increasingly interested in creating scholarship that uses visual materials in new ways. I work with a team of scholars and technology experts that is helping to create multimedia scholarship. The USC Shoah Foundation Institute is a vital partner in this endeavor as the testimonies become available to university researchers around the globe.

Consider the scholar interested in conducting research in the Visual History Archive. Traditionally, she would study the videos, develop her analysis, and then present her findings in print. This publication is then read within a fairly small scholarly community. Now we have digital platforms that allow us to present such research differently and to publish these results online with tes-



timony clips. This also means we can ask new types of research questions and reach new audiences. We might imagine the scholar's role as providing a kind of guided tour of a selection from the Visual History Archive, using analytical skills and historical knowledge.

The beauty of working online within an academic context is also that several scholars might work together on a particular theme or set of testimonies, providing different interpretations. It also means that research is not static; other communities of users, such as students, archivists, or interested members of the public, might provide comments or add new clips from the testimonies. This, in turn, creates new forms of edited online publication and new paths through the Visual History Archive.

The important scholarly research being undertaken at the Institute can now live in closer relation to the testimonies themselves, which are the heart of the Visual History Archive. One can imagine a future in which users might not only watch the testimonies but also view the research undertaken by scholars, which could be accessible from within the collection. It means that if a scholar has studied a group of testimonies about, say, hunger in the ghetto, whenever one of those testimonies is watched, the Visual History Archive will be able to tell the

gauge the face and voice of the survivor through the video while reading the research analysis. The flick of an eye, the sweep of a hand, the timbre of a voice would bring the writing to life.

Projects such as this point toward new possibilities for visual scholarship, making rich use of the visual nature of the Institute's vital collection. It will hold scholarly analysis and the evidence the testimonies provide much more closely together. It will also embrace the human elements of testimony, underscoring that the entire person remembers history and illustrating the power of video to capture that reality.

Visual archives, including the Institute's Visual History Archive, are eager for scholars to engage the testimonies as audio-visual material, but still very little support exists for scholars to undertake such research. In close partnership with the Institute and with support from the Andrew W. Mellon Foundation, the Alliance for Networking Visual Culture (ANVC) is working with archives, universities, and publishers to address this challenge. The Alliance aims to enable scholars to work more closely with archival materials, creating new forms of analysis. The result is an easy-to-use new software platform called Scalar, which is being developed partly at the University of Southern California. Scalar allows scholars to publish online with leading uni-

versity presses and to incorporate video clips from the Institute's Visual History Archive in this research. Our goal is to enable scholarship that actively engages the testimonies in all their richness and to share this work with new audiences online; our publication partners include MIT, Duke University, and the University of California, which are all committed to publishing research that engages the Visual History Archive in new ways.

The Alliance is currently in a prototyping phase, working with a select group of institutions to test out its ideas and to develop appropriate infrastructure. In addition to the Institute's Visual History Archive, the Alliance's archival partners include a video database of performance art addressing cultural memory (the Hemispheric Institute's Digital Video Library), the non-profit Internet Archive, and the USC-based research and teaching archive, Critical Commons. Each of these archives is quite different but, across their differences, we are learning a great deal about how scholars might best use still and moving images within new forms of scholarly writing.

We are finding that researchers are excited to engage archival materials in digital form, and those scholars committed to analyzing video or still images see particular advantages to being able to work "close up" with these materials, allowing annotation and detailed interpretation. They see distinct gains to be had from being able to "pull" these materials directly into new authoring platforms, especially when they can draw material from multiple sources. Nonetheless, researchers are also concerned about how this work with archival materials will circulate and how it will count within their universities when they are evaluated for promotion and tenure. Humanities scholars today typically work with university presses when publishing their research in print form, so these same institutions are important partners in our current research.

Several tensions exist within the academic community over digital scholarship. Presses want to undertake this work but are operating on very limited budgets, which makes experimentation difficult. Scholars value the ability to use digital media in their research but often need support in order to author in new digital platforms. Archives want to provide such support but also want to work in tandem with other archives and other institutions so that each archive need not reinvent the wheel. University administrators worry about how best to evaluate emerging forms of online research that are often deeply collaborative and that also circulate to new audiences outside the academy. Over time, we have developed careful guidelines for assessing more traditional forms of research, and digital scholarship can sometimes challenge these methods. Rather than working in a piecemeal fashion, the Alliance for Networking Visual Culture aims to address these many tensions as part of the same process, building both a rich technological and a human infrastructure for new modes of communication.

Working with the tools of the digital era is exciting, but the digital is for us a means to an end, not an end in and of itself. Our larger goal is to deploy the digital in ways that let us bring history and memory more palpably to life. Through these research projects, we aim to animate the Visual History Archive, allowing important stories to be told using the media that move us: the testimony itself. ■

One can imagine a future in which users might not only watch the testimonies but also view the research undertaken by scholars, which could be accessible from within the collection.

viewer that there is interesting research connected to it. That way, archive and analysis would live together within the digital realm, each enriching the other.

Or consider the scholar who wants to demonstrate the power of emotion or facial expression on the spoken word and illustrate meaning in the testimonies that exceeds text. Such a scholar will be able to use the testimony directly and include the nuances of the visual directly into her own research online. This will allow her reader to en-

Tara McPherson is Associate Professor of Gender and Critical Studies at the USC School of Cinematic Arts, and Co-Director of the USC Center for Transformative Scholarship. For a full biography, see page 4.

Building a Tree of Testimony

By Mark Rothman

A new exhibit at the Los Angeles Museum of the HOLOCAUST immerses visitors in survivors' *memories* from the Institute's Visual History Archive.



The Tree of Testimony at the Los Angeles Museum of the Holocaust

Mark Rothman is Executive Director of the Los Angeles Museum of the Holocaust. For a full biography, see page 4.

EVERY MUSEUM is challenged to find meaningful ways to share its content. But what about when that content is memory itself—namely, the memories of nearly 52,000 Holocaust survivors and other witnesses contained in their video interviews?

“It would take years to watch them one at a time,” E. Randol Schoenberg said. Schoenberg is Chairman of the Board of the Los Angeles Museum of the Holocaust, which has unveiled its approach to the issue of how to engage people with 105,000 hours of video from the Visual History Archive: the Tree of Testimony, a stunning exhibit of dozens of video screens that immerses visitors

in the life stories preserved by the USC Shoah Foundation Institute.

“On these screens, we can display all of the testimonies in one space over one year,” Schoenberg said. “Every family that contributed to the Visual History Archive should take comfort knowing that their loved one’s testimony will be seen and heard by our visitors.”

The Tree of Testimony demonstrates how technology is enhancing Holocaust education and memorialization. Sixty-five screens, seemingly placed at random across a large wall, are connected via wires that suggest the branches of a “tree of life,” or family tree. Keywords, culled from the Institute’s extensive cataloging of the testimonies, appear onscreen to tease information from whichever testimony is currently playing; when someone selects that testimony, the keywords disappear so the survivors can speak for themselves. Visitors can then listen to any onscreen testimony through our award-winning, iPod touch-based audio-guidance system.

By also making the Visual History Archive accessible at computer stations found at various locations throughout the Museum, it has become a destination for testimony-based research. Each workstation employ the Institute’s own search engine, which draws from a thesaurus of more than 50,000 search terms—such as individuals’ names, geographic locations, and historic events—to locate segments of testimony that address specific topics or interests.

On these screens, we can display all of the testimonies in one space over one year. Every family that contributed to the Visual History Archive should take comfort knowing that their loved one’s testimony will be seen and heard by our visitors.

“There’s something poetic about the oldest Holocaust museum in the United States relying on technology to exhibit the testimonies in a new way,” Stephen D. Smith, Executive Director of the USC Shoah Foundation Institute, said. “But the Tree of Testimony is about human lives, and the Museum is exercising the utmost care to ensure that the technology is as transparent as possible. In that way, tens of thousands of visitors each year will remember the survivors who guided them into the past, rather than the systems used to draw people into their memories.” ■

Closing *the* Digital Divide

Stephen D. Smith interviews Comcast Chairman & CEO

Brian L. Roberts

PHOTOGRAPHED BY PAUL SIROCHMAN

Stephen D. Smith: People might not think of education when they think of Comcast, but that's what brought our organizations together. How does Comcast approach educational outreach?

Brian L. Roberts: When my father started Comcast in 1963, he felt that our philanthropy should focus on the communities where our cable systems are. This idea is at the essence of our thinking; it guides our educational work. Education is a natural priority at Comcast, particularly for low-income children who aren't getting the best of what education can be, whether that's technology, teacher training, or youth initiatives. A number of our most successful partnerships have been in these areas.

Smith: How would you say technology is shaping education?

Roberts: Technology is involved in so much of how we live our daily lives, and it's changing at light speed. The problem with

technology and connectivity is that there are Haves and Have-Nots, which is why Comcast is rolling out what is probably the most important and ambitious program in our company's history: Internet Essentials. The goal is for every K-12 student who's eligible for the National School Lunch Program—which is based on family income—to receive a super-discounted laptop, digital literacy training, and \$9.95-a-month broadband service until they graduate from high school. If you think about what's necessary to do homework, to stay connected to what's going on in class, to what's on the smart board...if you think about what it takes to prepare for college or the work force, it all requires being able to work on the Internet. If you're not connected, you don't have any hope. This is the so-called "digital divide," and it's a challenge that too many students and families face. That's why Comcast is partnering with community-based organizations, and with organizations



“If you think about what it takes to prepare for college or the work force, it all requires being able to work on the Internet. If you’re not connected, you don’t have any hope. This is the so-called “digital divide,” and it’s a challenge that too many students and families face.” – *Brian L. Roberts*



“The question is, ‘What can we do to improve education so the next I think we’re one tiny part of that conversation, but we should do our best

like the USC Shoah Foundation Institute, to create connections that otherwise would not exist.

Smith: *How did you hear about the Institute?*

Roberts: Like many people, I saw the Shoah Foundation’s documentary films years ago. And as a moviegoer and a member of the media industry, I’ve been a huge admirer of Steven Spielberg and his vision for changing the world by trying to make more than an incremental contribution... by trying to have a revolutionary effect.

Smith: *When you say “revolutionary,” what do you mean?*

Roberts: Take Steven’s films, for example. Through projects like *Schindler’s List* and *The Color Purple*, he’s dealt with subjects that may heretofore have only occupied a niche in public awareness, yet he’s managed to attract large audiences. The same thing is happening with the USC Shoah Foundation Institute. It’s drawing worldwide attention to the life stories of Holocaust survivors.

Smith: *You’ve talked about people in your life who’ve had an impact on you. How does that relate to your work?*

Roberts: When you’re part of a company, very rarely do you get a chance to step back and reflect. You have to produce, and your quarterly results have to be better than the last quarter, every quarter. Nonetheless, it’s important to ask, “Where do we want to be in five or 10 years, not only from an investor’s viewpoint but as a company that everyone would be proud to be associated with?” I think what would make my dad proud, and what would have made Dan Aaron proud, who helped start the company—he’s passed away—could we be using our technology and relationships to help in a way that no other company can help?

Smith: *Can you give me an example?*

Roberts: Right out of the box was the [Ambassadors for Humanity] event in Philadelphia. We said, “Let’s use that as a galvanizing opportunity to think more creatively and ask the Institute, ‘What are your goals?’” One issue was that 10

films had been made, but not too many people had really had the chance to see them. So our thinking was, “We have the On Demand platform, we have our XFINITY TV app for the iPad, and we’re looking for extraordinary, breakthrough content. Let’s put these 10 films on TV via our On Demand and make them available online.” And within a very short time, the Institute’s films—and the stories and memories they contain—were accessed 350,000 times by individuals and families who otherwise would not have seen them.

Another example has to do with our commitment to getting broadband into the homes of more low-income families. The idea of connecting them to Holocaust survivors—of saying, “One of the reasons to go on the Internet is to learn from the stories of people who have come before you”—wouldn’t seem like an obvious fit. So we were all pleasantly surprised by how kids responded, by their increased desire to get onto 21st century technology by looking back at some of the horrors of the 20th century.



generation has a better chance of success?’ to participate—to help as best we can.”

So through our Internet Essentials program, and through our partnerships with One Economy, Project H.O.M.E. in Philadelphia, and with the USC Shoah Foundation Institute, we’re finding that there’s an unlimited reservoir of ideas. Now, we just have to get out and make the best ones happen.

Smith: *What do you think about the role of media companies in the world, in terms of responsibility and the shaping of ethics and values?*

Roberts: When I had a chance to visit with [USC] President Nikias, I asked him why the university wanted to take on the obligation and opportunity to house the Institute’s Visual History Archive on its campus.

Smith: *What did he say?*

Roberts: He lit up. He said the Institute can help define USC for more than just what’s happening on campus, and I think the same is true of a company like Comcast. My thinking is, “Okay, we just inherited NBC News as part of our acquisition of NBCUniversal. More people get their news from NBC than any other source in

America, which means it needs to be the best.” We also have a platform to connect people all over the world by using our broadband service. There’s this pursuit of global connectedness, while at the same time we want to preserve freedom and individuality... These are lofty ideas compared to what was happening 50 years ago, when you were very much in your own silo, both technically and educationally.

Smith: *Have you had any moving personal experiences with Holocaust survivors or through their testimonies?*

Roberts: Well, one experience that’s very personal was with Dan Aaron. Dan was the head of Comcast Cable. His family escaped the Holocaust, but both of his parents committed suicide once they got to the United States. Dan was my first real boss; he had the greatest heart and social conscience, and he cared deeply about Comcast’s employees. He was a really deep thinker and a special man.

Unfortunately, Dan got Parkinson’s disease when he was young, and he passed away 20

years later. But toward the end of his life, he and his brother wrote a memoir that told a lot of Dan’s history that many of us didn’t know. There were some secrets in there about how tough his job was, and about how he lost his parents, that really struck a chord with me.

Smith: *What do you mean when you talk about Dan’s “social conscience”?*

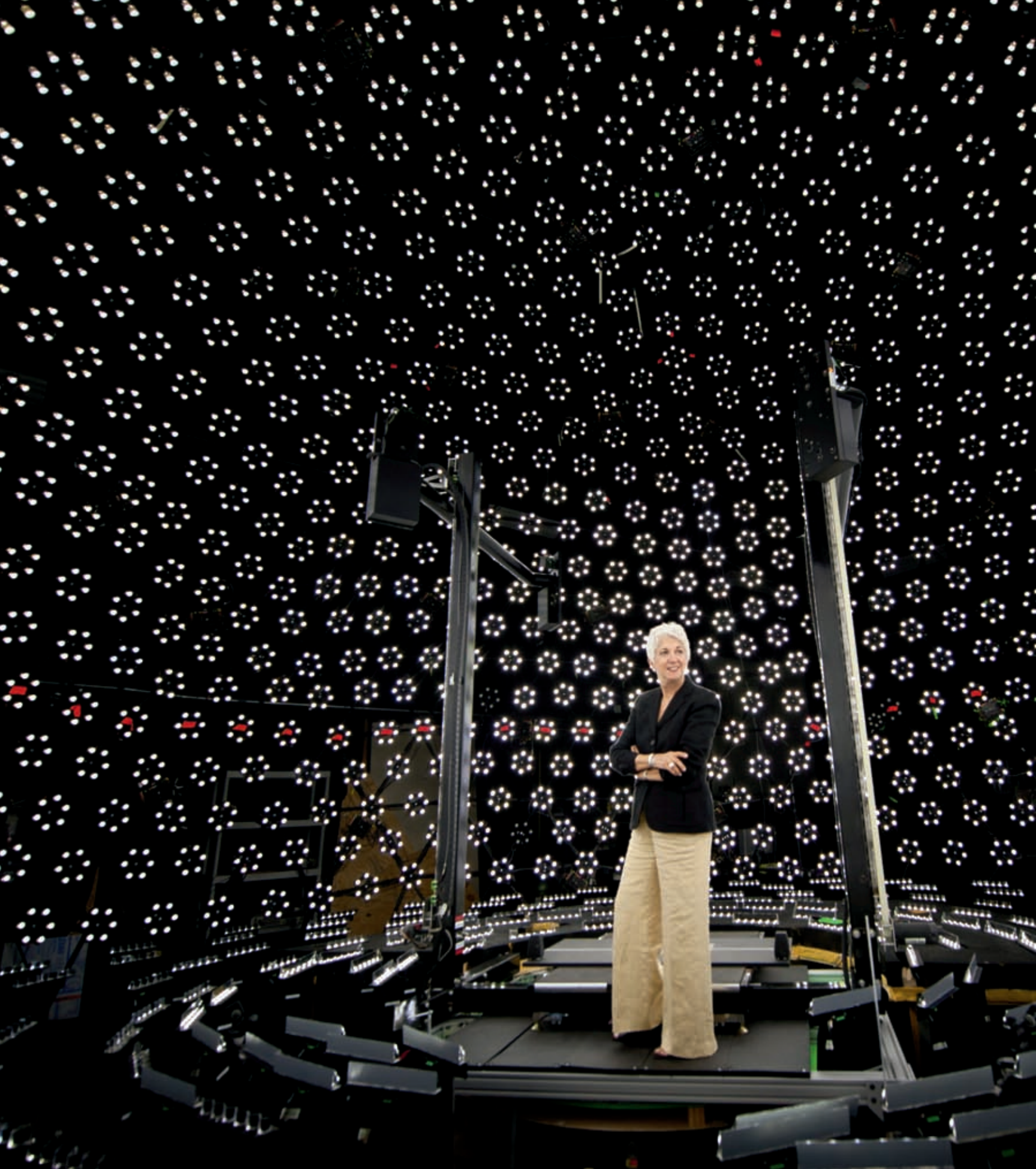
Roberts: It means looking at a decision with an eye for all its implications, not just the bottom line. It’s about asking, “What is the culture of the company? Is it fair?” Not turning a deaf ear to different points of view is probably what Dan stressed the most, but it was also kindness. Let me give you an example.

When I was about 23 years old, I had to argue a matter before a city council. I got about half of what I asked for, and I thought I’d failed. When I got back, I received a handwritten note from Dan that said, “You did a great job. You were lucky to have gotten us what we got.” It gave me such a good feeling. To this day, I still don’t know whether I did a good job or not, but it doesn’t really matter. Dan made me feel like I had.

Smith: *In your career or in your life so far, what are you most proud of, and what do you still want to accomplish?*

Roberts: I’m very proud of my family and my relationship with my wife, Aileen; I’m proud of our kids and what they’re accomplishing. Professionally, perhaps I’m most proud of what Comcast has become. We have wonderful people who are giving back to the communities we do business in, people who are using the technological revolution to add value to society at all levels.

But the world never stops. The question is, “What can we do to improve education so the next generation has a better chance of success?” I think we’re one tiny part of that conversation, but we should do our best to participate—to help as best we can. Now with NBCUniversal, I hope we can do even more to help in the next 20 years than we did in the last 50. ■



Beyond cameras Daisy Miller, a Holocaust survivor and the Institute's Director of Community Relations, in one of the light stages that will capture testimony. Photo by Kim Fox

New Dimensions in Testimony

How new technologies—and interview questions—
will contribute to the dialogue between
students and survivors.

By Heather Maio, David Traum, and Paul Debevec

HOLOCAUST SURVIVOR Gussie Zaks had come to San Diego to speak to a class about her experiences during the Holocaust as part of the students' world history course. The room was silent as she spoke. Only Holocaust survivors seem to have the ability to keep a class as captivated. For more than 60 years, Holocaust survivors have recounted their stories thousands of times to thousands of children all over the world, giving insights and without a doubt changing the perspective of those children for the rest of their lives.

Gussie recounted how every single member of her immediate family had been murdered; she told the students how she had managed to survive and hold on; then she answered their questions, and a dialogue between generations unfolded.

After the class was over and the little crowd around her had subsided, Gussie turned to leave. A girl stepped between her and the door and tried to speak, but she could only cry. Gussie initially apologized, assuming that something she had said had upset the girl. Finally, the girl revealed that her sister had drowned in the family's swimming pool several years before. She wanted to hear from Gussie

how she had found the strength to go on after losing her own sister. Gussie told her that it was important to remember her sister, but that she must not feel guilty about moving on.

A relationship developed in that classroom, as it has in other classrooms and museums around the world where Holocaust survivors have been tireless volunteers for many years. First there was the testimony, then the dialogue with the class, then the personal conversation.

Countless children have been touched by Holocaust survivors who have visited their school or talked to them in a museum. These encounters have created a connection and given those students an intimate experience with someone uniquely qualified to reflect on life, and about a very real part of history from an eyewitness perspective. To preserve that special

relationship between survivors and students, Conscience Display and the USC Institute for Creative Technologies (ICT) have undertaken a project called New Dimensions in Testimony.

New Dimensions in Testimony will combine new interview content with advanced filming, voice-recognition processing, and display technologies, developed specifically for such a need. It is our intent to design an environment in which an individual or an entire class can have a survivor sit with them to tell his or her story, via video or projector; they will be able to ask questions, and the survivor will answer from the testimony as if he or she were in the room.

To do this, New Dimensions in Testimony will gather survivors' answers to hundreds of questions—some that they are asked on a daily basis, and some that they may never have been

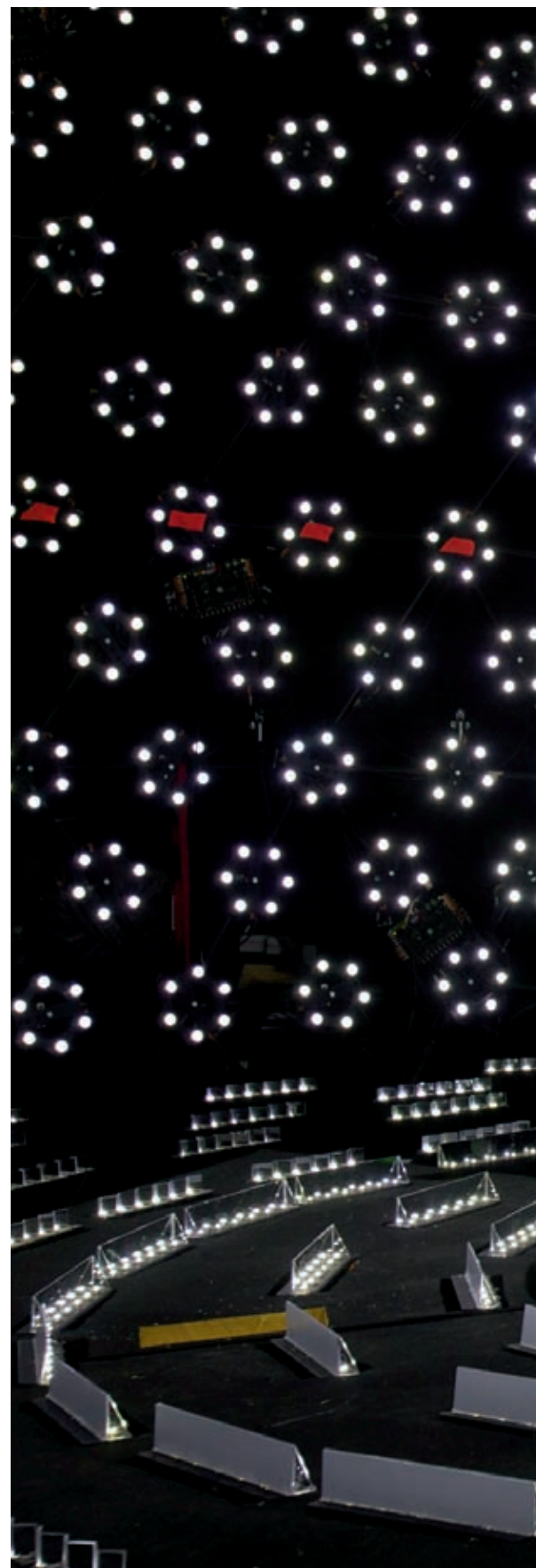
How Natural Language Technology Works

By David Traum

One critical element of the new project is developing the ability to understand questions put to a survivor and select appropriate responses. This will allow a person to engage in an interactive dialogue with the survivor, asking questions in their own words and hearing the survivor's response. The technology must be able to recognize similarities between word patterns in questions and answers and choose answers to new questions that are similar, but not the same as, questions for which the answers are known. The Institute for Creative Technologies (ICT) has developed a number of virtual human characters with this capability, for a variety of purposes; for example, they are used for training clinical psychologists and soldiers to conduct different kinds of interviews or recognize when someone might be lying.

To achieve the level of authenticity necessary to provide viewers with a truly immersive experience, we will apply the technology to the answers Holocaust survivors give us, so that young people interacting with them will have their questions answered. ■

ICT Graphics Lab Research Programmer Andrew Jones (left) discusses the technologies being used to make the New Dimensions in Testimony project possible. Photo by Kim Fox



New insights Survivors like Pinchas Gutter (seated) will answer



new interview questions—many of which may have never been asked of them before. Photo by Michele Zousmer

From left: Heather Maio, Director, Conscience Display; Paul Debevec, Associate Director for Graphics Research, USC Institute for Creative Technologies (ICT); Daisy Miller, Holocaust survivor and Director of Development and Community Relations, USC Shoah Foundation Institute; and David Traum, Research Scientist, Research Assistant Professor, ICT



asked before—on topics such as family, tradition, memory, belief, identity, ethics, etc. The answers they give will be placed in a database; this database will then be used to sustain the dialogue between students and the survivor. We will use a technology called Natural Language Understanding, which will allow the computer to find the most appropriate answer from the many answers available. The most advanced 3-D recording techniques will mean we can record and present photo-real human images and display them life-size, in real three dimensions.

The project is about collecting the penetrating answers survivors give to the difficult questions young people ask. The technology we have chosen to develop and use allows us to capture that conversation with the closest sense of reality at hand. As one result, Conscience Display and ICT envision a room in a museum in which you can sit and ask questions of a Holocaust survivor for generations to come.

One survivor, Arek Hersh, was speaking at

the U.K. Holocaust Centre in Nottinghamshire. After his talk, a 14-year-old boy approached him and said, “Mr. Hersh, I had an argument with my mother and fell out with her this past Sun-

day. I have refused to talk to her since. After hearing your story of how you lost your whole family, I realize how important family is. I promise you that I’ll never take my family for granted again.”

Years from now, long after the last survivor has left us, the New Dimensions in Testimony project will provide one path to enable young people to listen to a survivor and ask their own questions directly, encouraging them, each in their own way, to reflect on the deep and meaningful consequences of the Holocaust.

“It is amazing to think that, as well as the USC Shoah Foundation Institute that preserves our testimonies in perpetuity, young people will be able to hold the kind of conversation I have daily when I go out to speak,” said Holocaust survivor Pinchas Gutter. “This is a truly good use for technology.” ■

For full biographies of the authors, see page 2.

To learn more, visit:

<http://gl.ict.usc.edu/LightStages/>

<http://gl.ict.usc.edu/Research/DigitalEmily>

<http://gl.ict.usc.edu/Research/3-DTeleconferencing/>

<http://gl.ict.usc.edu/Research/3-DDisplay>

Recording and Displaying Testimony in 3-D

By Paul Debevec

ICT has pioneered techniques for 3-D display, allowing a speaker’s face to be recorded, transmitted, displayed to an entire group of people—no 3-D glasses required—and able to make realistic eye contact with the remote audience for compelling telepresence. For this project, ICT will extend these technologies to record the Holocaust survivors, from head-to-toe, while they give testimony. Later, these data will be processed into video segments that can be

played back verbatim, precisely as they were delivered by the survivors. The playback system, which is still in development, allows the testimony to be seen from any vantage point, as if it were given in a classroom or museum setting, illuminated properly to blend with the environment. ■

Light Stage technology will be used to record Holocaust survivors, allowing them to be seen from any vantage point, in 3-D.



For Rwanda, for the World

By *Freddy Mutanguha*

Sharing my story was a way out of darkness. Through the *Genocide Archive of Rwanda*, it's also how I'll be able to make a DIFFERENCE.



Freddy Mutanguha is Director of the Kigali Genocide Memorial and a survivor of genocide. For a full biography, see page 4.

RWANDAN SINGER and genocide survivor Kizito Mihigo has a lyric that expresses how the genocide changed my view on the value of human life: "The darkness has shown my way."

I lost my parents and four sisters during the darkness of the 1994 genocide against the Tutsi in Rwanda. I was one of many orphans left without assistance after 100 days of killing. Rather than let the darkness consume me, I have tried to learn from what I experienced. I've also joined the effort to establish the Genocide Archive of Rwanda, a repository of audio-visual testimony.

Survivors' stories are important for many reasons. Their educational use will teach young Rwandans about the mistakes of the past: There's a Rwandan proverb that says, "If you see a stone, it cannot damage your hoe," which means that once you become aware of dangers, such as the prejudices and policies that led to genocide in 1994, you will be able to avoid them in the future.

Testimony can help restore social cohesion. For centuries, Rwanda was home to three socio-

economic groups that lived alongside one another in general harmony; the tensions that erupted in 1994 originated under a Belgian colonial administration that actively sought to enhance the perception of differences between Hutu and Tutsi. Testimonies challenge this distortion by revealing all that we have in common as human beings.

Another reason for testimony is to remind the global community of its responsibility to defend human rights; a survivor's voice is a powerful tool for the advocacy of genocide prevention and intervention.

Giving testimony looks easier than it actually is. I remember the first time I tried to give mine, eight years after the genocide, at an international conference. As the conference drew to a close, I realized that people expected me to

talk about my experiences. I felt obligated to do so, even though I was unprepared and unwilling, so I shared a "light version" of what had really happened to me. Afterward, I wondered if I had done the right thing.

As Thomas King wrote in his book *The Truth About Stories*, once you've heard a story, it becomes your story: "Do with it as you will. ... But don't say in the years to come that you would have lived your life differently if only you had heard this story. You've heard it now."

In 2004, I began interviewing other Rwandan survivors for Aegis Trust, which manages the Kigali Genocide Memorial. As the survivors recalled what they had lived through, I found myself relating to their pain; this connection had a healing effect that helped prepare me to share my own story.

Revisiting those memories for the first time can make you feel sick. It can give you headaches and nightmares. But the more you tell your story, the easier it gets, which is why I was able to give five hours of testimony at the USC Shoah Foundation Institute in 2008. Aegis Trust and the Kigali Genocide Memorial had begun planning the Genocide Archive of Rwanda, and the need for outside training and consultation had become apparent; meanwhile, the Institute wanted to include Rwandan testimonies in its Visual History Archive. Aegis Trust proposed a partnership between the Kigali Genocide Memorial and the Institute, which would lead to a unified repository; I was on the delegation that came to Los Angeles to formalize an agreement between the two organizations. In the years since, we have studied the Institute's interview methodology and modified it for use with Rwandan survivors. We have learned how to make our archive searchable like the Institute's archive; we have even spent time with the technologists who manage the Institute's digital preservation system.

At the Kigali Genocide Memorial, we share the Institute's belief that the testimonies of genocide survivors will change the world. As Canadian First Nations writer Thomas King wrote in his book *The Truth About Stories*, once you've heard a story, it becomes your story: "Do with it as you will. ... But don't say in the years to come that you would have lived your life differently if only you had heard this story. You've heard it now." ■

Visit dornsife.usc.edu/vhi/witnessesforhumanity/rwandangenocide to learn more about the effort to preserve Rwandan survivors' memories.



Searching Their Voices

By Jan Hajič, Pavel Ircing, and Josef Psutka

To facilitate TESTIMONY-BASED research, our team has gone beyond the usual paradigm of improving *speech* and *language* technology incrementally.

For full biographies of Jan Hajič, Pavel Ircing, Josef Psutka, and other contributors to this issue of PastForward, see page 2.

THE INSTITUTE'S testimonies have been indexed minute-by-minute by cataloguers, who developed a thesaurus of more than 50,000 words and concepts, individuals' names, and locations. These are the keywords used by the Visual History Archive's search engine; the indexing system is what allows a student or scholar interested in female political prisoners' first impressions of camps, for instance, to locate the 42 testimonies—and the specific segments—in which women who were political prisoners during the war recall their arrival in camps.

As useful as the archive is, its searchability is based on a limited set of keywords; if a word is not indexed, the search engine will not be able to locate testimony in which it occurs. Searchability is also limited by language; testimonies in non-English languages are "hidden" from people who speak only English, and vice versa. To solve these shortcomings, our team is using the Institute's Czech-language testimonies to embark on two projects that go beyond the usual research paradigm of improving speech and language technology incrementally.

The first project aims to make the testimonies fully searchable, rather than limiting search terminology to the prescribed keywords. To do this, we are developing software that converts speech into text. This speech-recognition engine, which has been in development at the Department of Cybernetics,

University of West Bohemia, for more than a decade, has the ability to learn; after being presented with thousands of recorded vocal utterances and corresponding text transcriptions, the system develops a statistical framework for assessing the likelihood that a specific unit of sound relates to a specific unit of text. Using this probability-based *acoustic model*, the speech-recognition engine can analyze speech as vocalized text. If the Institute's Visual History Archive had this capability, users would be able to explore the richness of the survivors' narratives by searching the entire "text" of the testimonies as if they were transcribed.

If we were to allow the speech-recognition engine to develop an acoustic model based on arbitrarily formed sequences of sounds, real words would seldom result. Thus, the software has been designed so that it is only able to form sequences of sounds found in its *lexicon*, or built-in vocabulary of words; these words, as well as the *language modeling* capability that allows the system to recognize correct sequences of words, are derived from *language corpora*: very large samples of "real-world" text that researchers use to identify—and in our case, adhere to—the rules that govern natural languages.

One of the greatest challenges we've faced has been the difficulty of finding language corpora that are large enough to be used as a source for deriving reliable probability estimates. At the same time, in order to make the speech-recognition engine useful for searching the Visual History Archive, we should use text on topics similar to those covered in the testimonies; for while the system can recognize even "difficult" speech (such as that of someone overcome by emotion) with 75 to 80 percent accuracy, it can only recognize words that are included in its lexicon.

When it comes to searching the testimonies, experience has shown that rare words are the ones people find most interesting; for example, someone may want to search for testimony from survivors who lived in the same village as did their parents or grandparents—a village whose name has been pronounced and spelled in different ways and that is now called something entirely different from what it was called before the war. But what if the user doesn't know how the system's lexicon refers to that village? As a solution to the challenge this question raises, we have developed software that analyzes testimony for networks of words and phonemes (distinct units of sound from which words are formed) without restricting results to vocabulary found in the system's lexicon. If a user searches for a term that is found in the lexicon, it is

quickly located in the word network, which is very reliable; if the term is not found in the lexicon, it is deconstructed into phonemes and searched for in the phoneme network as a way to find words that the system doesn't recognize. In both cases, the user is presented with a list of terms that link directly to corresponding segments of testimony.

Our second project addresses the issue of *machine translation*, or using software to translate between English and other languages. There are two ways in which a good translation system can be useful: for translating keywords from one language to another and for searching across languages. Keywords that refer to general terms, such as “family” or “hunger,” are easily translated; those referring to historical names (e.g., place names with variable spelling and pronunciation) are much harder to translate. We have tried to develop a general approach to translation that allows us to identify terms that must be manually translated (geographic names, names of organizations, etc.), distinguishing them from words and phrases that current software typically has no difficulty translating. Such a system could be used to translate the Visual History Archive's English-language keywords into the many other languages in which survivors gave testimony; this alone would enable people to use keywords in their native language to search for relevant testimony in other languages. However, in cases that would require a full-text search of a survivor's narrative, users would be helpless, which is why we are developing a full-text translation system—one robust enough to handle automatic transcripts with reasonable accuracy. So far, we have concentrated on translating between English and Czech, since we are most readily able to address this pairing; additional quantities of linguistic data will be needed to broaden the project to include other languages.

Speech search (word- and phonetic-based) and machine translation are technologies that can be applied separately or together. We imagine that archives similar to the USC Shoah Foundation Institute's (for example, video archives of broadcasts, recordings of speeches and lectures, or even audio blogs and “vlogs”) can benefit from such technology, which allows searching for relevant content even if no keyword index or other laboriously prepared, search-enabling data are available—and in a user's mother tongue, regardless of the language of the recording. ■

The research described herein is supported by the Ministry of Culture of the Czech Republic as the project 'AMALACH,' grant No. DF12P01OVV022.

Preservation Bit by Bit

By Sam Gustman

The goal of our *digital preservation* program is to ENSURE that the testimonies will still be available 100 years from now.



Sam Gustman is the USC Shoah Foundation Institute's Chief Technology Officer, responsible for the operations and preservation of the Visual History Archive. For a full biography, see page 2.

IN LIBRARIES and archives, it has always been difficult to measure how much damage is occurring within a collection; if a page in a book gets ripped, it may be a long time before anyone notices. The same thing can happen to computer files that are stored offline on tapes, hard disks, or optical disks. But with online storage, it's possible to track damage automatically.

At the USC Shoah Foundation Institute, we constantly monitor multiple online copies of the Visual History Archive, which is now four petabytes in size (that's 32 *quadrillion* bits of information). We currently have two digital copies of the archive at USC, and we're adding a third, which for safety purposes will then also be mirrored to a “cloud” storage provider that will manage a fourth copy of the archive outside California. The goal of our digital preservation program is to ensure that the testimonies of Holocaust survivors and other witnesses will still be available 100 years from now.

Everything deteriorates over time, and film is no exception. Conservative estimates give shelf lives of 50 years for film, 20 years for videotape, five years for hard drives, three years for data tape, and only two years for DVDs before age-related “data rot” causes visible damage; the newer the technology, the more quickly data rot sets in. The four online copies of the Visual History Archive, both at USC and far away from USC, are constantly monitored for this rot. When it occurs, the files are immediately corrected, keeping the original copy pristine.

Because the testimonies were originally recorded on videotape, we can expect to see visible errors 20 years after they were recorded; that's in 2014 for the testimonies recorded in 1994. But even if the original videotapes are unusable 100 years from now, because of the technology we are using, we can guarantee that in 2112 the testimonies will be available and in pristine condition, as long as they are kept on an active online system and monitored for errors. ■

Visit dornsife.usc.edu/vhi/preservation to learn more about the preservation program.



Intersections Dr. Kori Street (top left), the Institute's new Director of Programs; students with filmmaker Michael Apter (top right) at the Student Voices master class sponsored by HBO; representatives of the principal institutions holding audio-visual Holocaust testimonies convene at the Institute (right, second from top); staff members of the Kigali Genocide Memorial Centre (bottom) discuss their experiences at the Institute.

Institute News

Institute Welcomes New Director of Programs

The Institute is pleased to announce the appointment of Dr. Kori Street as Director of Programs.

Known for her work in Holocaust education, testimony-based learning, and information literacy, Street will drive the Institute's education agenda in the U.S. and around the world. Her research interests include the Holocaust, the scholarship of teaching and learning, and World War I, and her publications have focused on information literacy, Holocaust imagery in film, and women in World War I.

Street has received a number of awards, including the Pierre Berton Award for History (2009) and the Distinguished Faculty Award (2011) of Mount Royal University, where she served as Chair of Entrepreneurship, Nonprofit Studies, International Business and Aviation in the Bissett School of Business before coming to the Institute.

Preservation & Access

Audio-visual Holocaust Testimonies Partnership

The Conference on Material Claims Against Germany (Claims Conference) convened a meeting of the principal institutions holding audio-visual Holocaust testimonies at the USC Shoah Foundation Institute last June. In addition to sharing information about how holdings are being stored, retrieved, catalogued, and indexed, the institutions met to discuss strategies for preservation and access to audio-visual collections.

Participating institutions included the Fortunoff Video Archive for Holocaust Testimonies, Yale University Library; Mémorial de la Shoah; Museum of Jewish Heritage – A Living Memorial to the Holocaust; the United States Holocaust Memorial Museum; USC Shoah Foundation Institute; and Yad Vashem – The Holocaust Martyrs' and Heroes' Remembrance Authority. ■

Scholarship & Research

Documenting the Rwandan Tutsi Genocide

A team from the Kigali Genocide Memorial Centre recently participated in an eight-week program at the Institute intended to build capacity for testimony collection in Rwanda. In addition to training and working with colleagues at the Institute, the team led a panel discussion at the University of Southern California on the challenges survivors face today, the effort to bring justice and reconciliation, and the Kigali Genocide Memorial Centre's documentation- and education-related goals.

Visit dornsife.usc.edu/vhi/witnessesforhumanity/rwandangenocide to learn more about the Institute's work in Rwanda. ■

Young Filmmakers Make Their "Voices" Heard

The Institute's second annual Student Voices Film Contest gave USC students of all levels and disciplines the opportunity to submit short films that use testimony to address topics related to the Holocaust and genocide, memory, and human rights.

Kayla Carlisle and Will Merrick won the contest for their film, *Strange Inheritance*. This year's distinguished jury again included Branko Lustig, Academy Award-winning producer (*Gladiator*, *Schindler's List*) and Holocaust survivor; Michael Renov, Professor of Critical Studies and Vice Dean of Academic Affairs, USC School of Cinematic Arts; and Holly Willis, Research Assistant Professor and Director of Academic Programs, Institute for Multimedia Literacy, USC School of Cinematic Arts.

HBO sponsored a two-day master class to prepare students for the contest; the class offered training on ethical editing of survivor testimony, as well as on filmmaking techniques. Michael Apted, director of the *Up* series of documentaries, delivered the keynote address.

Visit dornsife.usc.edu/vhi/masterclass2012 to see photos from the HBO master class. Visit dornsife.usc.edu/vhi/studentvoices to watch select films from the contest. ■

Italy's National Archives Launches Web Portal

A new Web portal has given researchers in Italy access to more than 430 Italian-language testimonies from the Visual History Archive.

The launch of the research portal is the latest milestone of the Institute's long-standing relationship with Italy's Archivio Centrale dello Stato (Central State Archives) and Ministry of Cultural Assets and Affairs, and was done in cooperation with the Scuola Normale Superiore di Pisa. Work began a decade ago, when funding from the Ministry of Cultural Assets and Affairs enabled the Central State Archives to send a team of historians and archivists to Los Angeles to index the Institute's Italian-language testimonies.

The Central State Archives hosted a gathering in Rome to celebrate the launch of the research portal in September. Visit dornsife.usc.edu/vhi/archivio2012 to view photos, video, and more information about the event. ■

Math Undergrads Study Visual History Archive's Geographic Data

For the second consecutive year, the Institute was a sponsor organization in the UCLA *Institute for Pure & Applied Mathematics' Research in Industrial Projects (RIPS) Program (see page 12 for an article by 2010 program participant Michael Hintze). The RIPS program "provides an opportunity for high-achieving undergraduate students to work...on a real-world research project proposed by a sponsor from industry or the public sector." A team of students from Mexico, Russia, and the United States studied the Visual History Archive to find ways to make better use of the geographic data contained in the testimonies; visit dornsife.usc.edu/vhi/rips2012 for photos and more information.

Other industry participants in the 2011 RIPS program included Aerospace Corporation, Areté Associates, Disney/Pixar, HRL Laboratories, IBM, the Los Angeles Police Department, Standard & Poor's, and Symantec Corporation. ■

*The Institute for Pure & Applied Mathematics is a National Science Foundation Mathematical Sciences Institute.

ACCESS TO THE TESTIMONIES

The Visual History Archive is now available to the public at **38 sites worldwide**, including the first sites in Canada, Greece, and the United Kingdom.



The following institutions recently gained access to the Visual History Archive:

- **Aristotle University of Thessaloniki***
(Thessaloniki, Greece)
- **History Meeting House****
(Warsaw, Poland)
- **Leibniz Universität Hannover***
(Hannover, Germany)
- **McMaster University**
(Ontario, Canada)
- **Northwestern University**
(Evanston, Illinois)
- **Royal Holloway, University of London**
(London, England)
- **University of Athens***
(Athens, Greece)
- **University of Haifa**
(Haifa, Israel)
- **University of Massachusetts, Amherst**
(Amherst, Massachusetts)
- **University of Pennsylvania**
(Philadelphia, Pennsylvania)

*Access made possible with the help of Freie Universität Berlin

**Access made possible with the help of Charles University

Visit dornsife.usc.edu/vhi/locator to find the access site nearest you.



Survivors' Memories Enhance Academic Courses

The Institute's testimonies of Holocaust survivors and other witnesses have enhanced 275 academic courses at universities and colleges across the world.

Courses range from film studies to "Effects of Traumatic Experiences," co-taught by Beth Meyerowitz, Vice Provost, Professor of Psychology and Preventive Medicine, USC (far left); and Karen Jungblut, the Institute's Director of Research and Documentation (right).

Testimony has been integrated into more than 70 courses at USC alone. Here Dr. Dan Leshem, the Institute's Associate Director of Academic Outreach and Research and Adjunct Assistant Professor of Comparative Literature, uses the Visual History Archive to teach a freshman seminar titled "Conscience and Memory: Listening and Responding to Survivors of Genocide." ■

Master Teacher Program

The Institute hosted its third annual "Teaching with Testimony" workshop in July, welcoming middle- and high school educators from across the United States. As the centerpiece of the Institute's Master Teacher Program, the professional development workshop prepares educators to craft their own testimony-based classroom materials and become ambassadors of testimony-based education in their communities. Visit dornsife.usc.edu/vhi/mtworkshop2011 for photos and more information.

Also in July, teachers who participated in 2010's "Teaching with Testimony" workshop returned to the Institute for a follow-up workshop, where they received certification and continuing education credits from the USC Rossier School of Education. Visit dornsife.usc.edu/vhi/certification2011 for photos and more information.

Visit dornsife.usc.edu/vhi/education to learn about the Institute's online resources, professional development workshops, and support services for teachers. ■

Faculty Stipend Program

The Institute's Faculty Stipend Program enabled three professors to integrate testimony into new courses at USC during for the 2011–2012 academic year.

Alison Dundes Renteln, USC Professor of Political Science and Anthropology, taught "International Human Rights," which utilized the Visual History Archive to address issues related to the Holocaust, the Rwandan Tutsi genocide, the rights of minorities, the rights of children born of genocide, and remedies for gross violations of human rights.

Yaffa Weisman, Adjunct Associate Professor of Contemporary Jewish Studies at Hebrew Union College – Jewish Institute of Religion, taught "Literature of Resistance," a course on the literature of resistance; the course gave students an opportunity to submit multimedia projects based on testimony from the Visual History Archive.

Dr. Vincent Farenga, USC Professor of Classics and Comparative Literature, will teach "Literature and Justice" in the spring. The course will involve comparative analyses of the media with which survivors' narratives are captured and the ways in which they construct their identities within testimony.

Visit dornsife.usc.edu/vhi/scholarship for more information about testimony-based scholarship and research, including a full list of courses that have used testimony from the Visual History Archive. Visit dornsife.usc.edu/vhi/locator to find the access site nearest you. ■

We Remember: Cuba's First Permanent Holocaust Exhibit

Testimony from the Visual History Archive has been incorporated into the first permanent exhibit about the Holocaust displayed in Cuba.

"We Remember – The Holocaust and the Creation of a Living Community," opened on December 18 at the Centro Sephardi (Sephardic Center) in Havana. The multimedia exhibit documents key periods in the history of the Cuban Jewish community and illustrates the local and worldwide impact of the Holocaust. Refugees who arrived in Cuba to escape the Nazi regime

A global mission Top from left: Paola Carucci, Superintendent, Archivio Storico del Quirinale; Agostino Attanasio, Superintendent, Archivio Centrale dello Stato; and Kim Simon, the Institute's Managing Director; Center: Peter Sugihara, a student in the RIPS program, presents at the Institute; Bottom from left: Rabbi Abraham Cooper, Associate Dean of the Simon Wiesenthal Center; Heather Maio, Director of Conscience Display; Stan Falkenstein, President of the Jewish Cuba Connection; Stephen D. Smith, the Institute's Executive Director.

provide firsthand accounts of their personal experiences via video clips, while an hour-long video features testimony about survivors' experiences during the war in Europe. Visit dornsife.usc.edu/vhi/cuba2012 for photos and more information. ■

“Human Fates” in the Holocaust: A Resource for Teachers in Hungary

The Institute launched a new classroom lesson for teachers in Hungary. Based on Holocaust survivor and rescuer testimony, *Sodrodas es szembenallas – Sorsok a veszkorszakban* (Drifting and Opposition – Human Fates in the Shoah) is designed to encourage classroom discussion about personal dilemmas. The lesson was developed in partnership with Hungary's Holocaust Memorial Center and the Education Research and Development Institute in Budapest.

The Institute provides online resources for educators in 11 languages in addition to English: Croatian, Czech, French, German, Hungarian, Italian, Polish, Russian, Spanish, Slovak, and Ukrainian. Visit dornsife.usc.edu/vhi/education/international to learn more about the Institute's international work. ■

“Pain of Memory” Training Program in Ukraine

“Pain of Memory,” a new education kit for teachers in Ukraine, uses testimony from the Visual History Archive to juxtapose memories of Holocaust survivors and bystanders. The kit is intended to enhance the educational experience of “Shoah by Bullets: Mass Shootings of Jews in Ukraine 1941–1944,” an exhibition based on the work of Yahad-In Unum, which conducts research and documentation of mass shootings that took place in Ukraine, Belarus, and Poland. “Pain of Memory” includes bystander testimony collected by Yahad-In Unum and survivor testimony collected by the Institute.

The Institute and the Ukrainian Center for Holocaust Studies have started a training program to equip secondary school teachers in Ukraine to use “Pain of Memory” in the classroom. Visit dornsife.usc.edu/vhi/painofmemory2012 to learn more. ■

Educational Outreach in the Czech Republic

At a training seminar convened by the Institute and Pant o.s., teachers learned how testimony of local origin can be used to study the complex history of the border region between the Czech Republic, Germany, and Poland. The seminar took place at the Summer School of Modern History, in Ostrava.

The testimonies of more than 500 Holocaust survivors and other witnesses in the Czech Republic are preserved in the Visual History Archive, which is accessible to local educators at Charles University, in Prague. Visit dornsife.usc.edu/vhi/charles. ■



Learning from survivors Beth Meyerowitz (top left), whose course “Effects of Traumatic Experiences” uses testimony from the Visual History Archive; cover image of “Pain of Memory” (top right), an education kit for teachers in Ukraine; professional development training at the Master Teacher Workshop (bottom).



Honoring a leader The USC Shoah Foundation Institute recognized Brian L. Roberts, Chairman and CEO of Comcast (top left), with the 2011 Ambassador for Humanity Award, its highest honor. Visit dornsife.usc.edu/vhi/album/afh2011 to view a photo essay from the event. Photography by FilmMagic



Honoring an Ambassador for Humanity

*In his hometown of Philadelphia, Brian L. Roberts
receives the Institute's highest honor.*

BRIAN L. ROBERTS, Chairman and CEO of Comcast Corporation, has received the USC Shoah Foundation Institute's Ambassador for Humanity Award. The award is reserved for individuals who embody the Institute's values and mission to promote tolerance and mutual respect through the educational use of the testimonies in its Visual History Archive.

Steven Spielberg presented Roberts with the Ambassador for Humanity Award—the Institute's highest honor—in May at a gala in Roberts's hometown of Philadelphia, where Comcast is headquartered; it was the first time the Institute's annual gala has taken place outside Los Angeles. Jon Bon Jovi, a veteran supporter of the Institute and of Comcast and Roberts's charitable work, was the special musical guest.

"Brian Roberts has been a longtime advocate of finding and developing innovative avenues to reach and educate young people," Spielberg said. "Working with Brian and Comcast to further explore ways to bring digital literacy to education gives me great hope that together we can effect significant change. Brian's vision and commitment to enhancing digital literacy in schools and communities across America make him a great ambassador for learning, and I am proud to recognize him for his

efforts in supporting the Institute's educational work."

In addition to spotlighting Roberts for his leadership and philanthropic achievements in education and technology, the Institute outlined its mission activities and groundbreaking programs. The gala was also an opportunity to highlight the partnership between Comcast and the Institute, which have collaborated on a variety of initiatives to advance the educational use of Holocaust survivor and witness testimony.

"I am so pleased that the USC Shoah Foundation Institute has joined forces with Brian Roberts and Comcast as we explore new ways to utilize our archive as an educational tool, and endeavor to reach a growing number of educators and students across the country," said Stephen D. Smith, the Institute's Executive Director. "Brian Roberts's foresight and leadership provide a guiding light as we work hard to have an impact on students' attitudes, beliefs, and sense of responsibility for the future." ■



“I have seen young students who have watched these testimonies. It does change them. These survivors—who are now educators—they can change the world.” - Steven Spielberg, Founder, USC Shoah Foundation Institute

Become an annual member.

For the first time ever, you can become an annual member of the USC Shoah Foundation Institute.

Become a partner in our work as we link individuals, educators, and students to the transformative lessons in our Visual History Archive, enabling the eyewitnesses of history to inspire change...*one voice at a time.*

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GIVING A VOICE TO THOSE WHO SURVIVED. FULFILLING A PROMISE TO THOSE WHO DIDN'T.



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Summer 2012

Our Mission

To overcome prejudice, intolerance, and bigotry — and the suffering they cause — through the educational use of the Institute's visual history testimonies

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College of Letters, Arts and Sciences