

Digital Presence in Physical Absence

Emotional Insights from Holocaust Testimonies

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With support from the United States Holocaust Memorial Museum (www.ushmm.org)

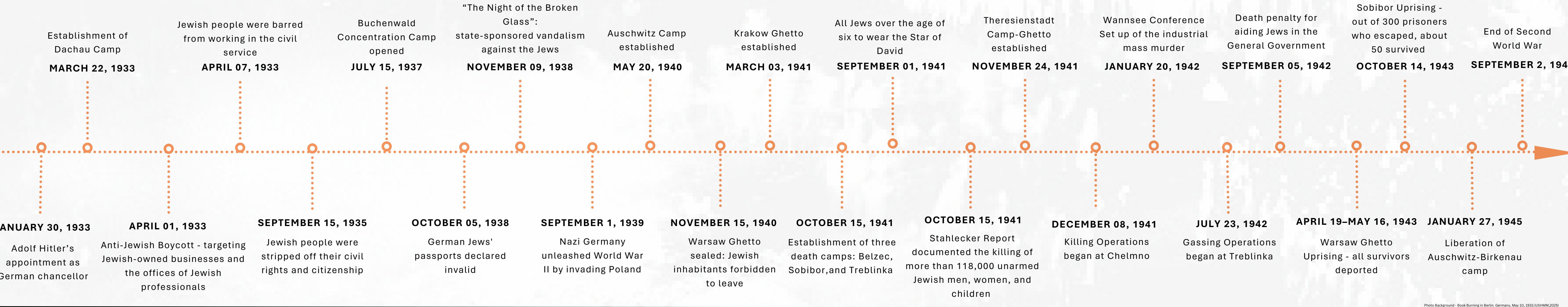


Introduction

Testimonies are a crucial source for understanding the Holocaust, providing first-hand accounts and personal narratives from survivors and witnesses. These narratives offer insights into individual experiences during this dark chapter of history. However, much of the existing analysis has focused primarily on the accounts of events from these testimonies (Waxman, 2012). Although historians have attempted to explore emotional expressions within these accounts through qualitative methods, such approaches have not allowed for a large-scale analysis (Eustace et al., 2012). Computational methods enable researchers to capture and analyse micro-level details in Holocaust testimonies that are often imperceptible to the human eye. For instance, subtle features such as brief pauses in speech or minor facial expressions can convey significant emotional and psychological information. These nuanced elements offer valuable insights for historians seeking a deeper understanding of survivor experiences. Our research aims to examine the nuances of testimonies in transcripts, video and audio media in understanding the Holocaust, recognising that the testimony formats affect how the narratives are perceived. These media-specific features may shape interpretation and highlight the importance of formats in preserving and interpreting the full meaning of witnesses’ and survivors’ accounts.

Dataset

We received a sample of 100 testimonies of Holocaust survivors and witnesses from the United States Holocaust Memorial Museum (USHMM) in video and transcript form. Of this sample, 20 testimonies were in English, 30 in Czech, 15 in Dutch, 12 in French, and 23 in Polish. The provision of these testimonies was enabled by Isuri Anuradha and Martin Wayne.



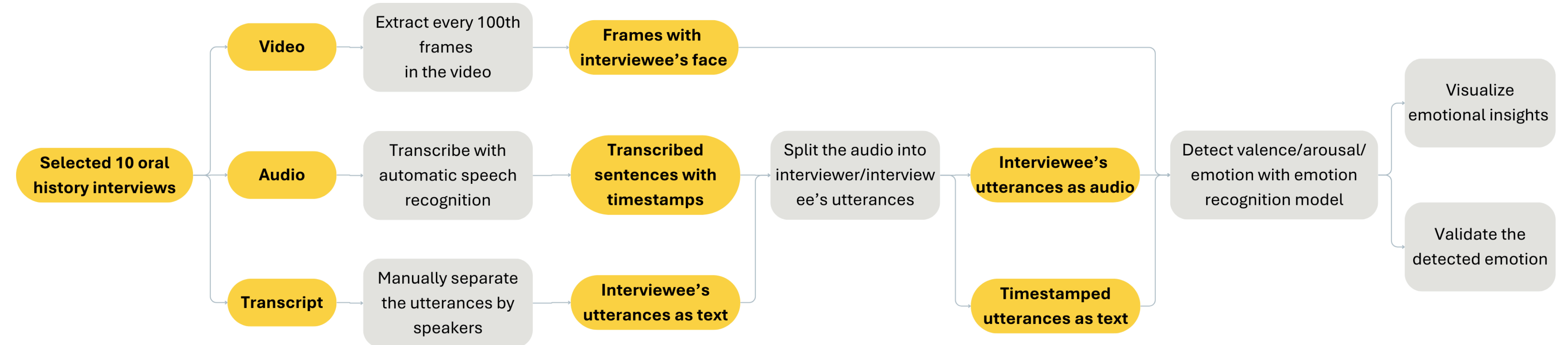
Research Questions

- How can we advance oral history research using computational methods?
- What are the nuances in different media (video, audio, and transcript) of the Holocaust oral history?
- How can we identify key moments using emotion detection in three types of media?

Ethics of Digital Holocaust Research

- **Human-centric approach:** Each data point represents a real person; emphasising their lives, stories, and legacies, not just statistics.
- **Methodological choices:** We avoided large language models at the model selection phase and validated the computational outcomes using qualitative and case study analysis.
- **Expert guidance:** We were educated by, and received continuous guidance and evaluation by Prof. Edyta Gawron, a distinguished Holocaust historian, ensuring our research holds both historical rigour and ethical sensitivity.

Methods



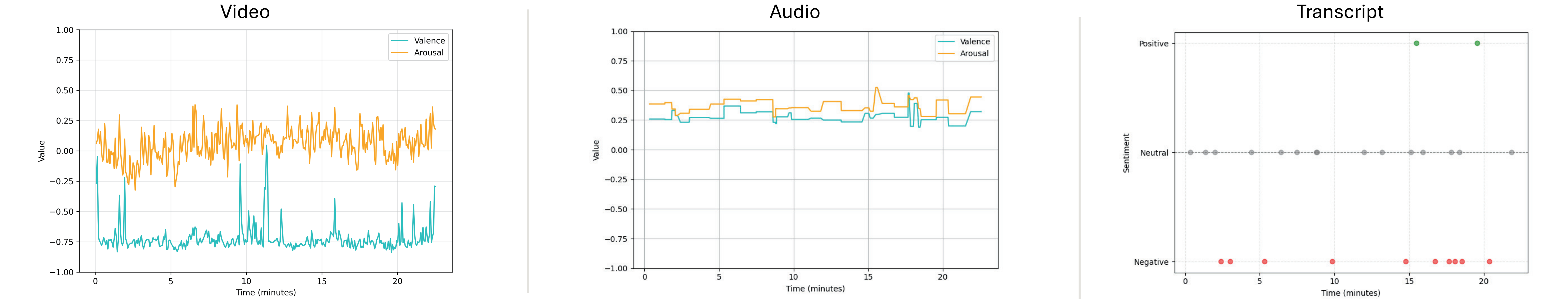
Interview Selection

Due to incomplete videos and a lack of transcripts, as well as limited time for manual annotation, we decided to select 10 videos from two languages - English and Polish for our analysis. Besides completeness and availability, interviews were selected according to diversity in gender, experiences, and emotional expressiveness.

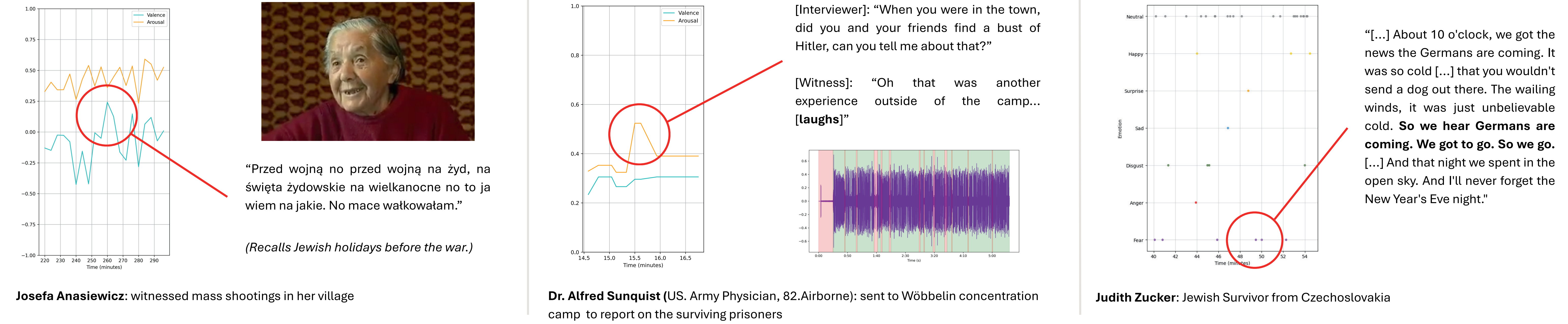
Working Together Like a Social Venture

- **Mission-driven:** United by the mission of preserving Holocaust witness accounts.
- **Agile workflow:** Daily goals like a startup to stay focused.
- **Encouraging environment:** A safe space for feedback and learning benefitting both tech and humanities researchers.
- **Transparency and continuity:** Logged key insights in a shared drive.

Results Timeseries visualization of valence and arousal in video and audio, and sentiments in text from the interview given by Dr. Alfred Sunquist (US. Army Physician, 82.Airborne) who was sent to Wöbbelin concentration camp to report on the surviving prisoners



Results: Key Moments



Discussion & Current Challenges

- **Computational methods help to advance oral history by capturing more layers of information from the testimonies.**
 - The emotional analysis from the video and audio adds the nuances that the transcripts may be lacking.
 - We observed that witnesses showed lower valence and higher arousal than survivors from the visual emotion recognition.
- **Audio Challenges**
 - Audio detection shows low variance in valence and arousal among the survivors and witnesses.
 - Pre-trained models are mostly trained in English, highlighting the risk of language biases when generalising findings.
- **Video Challenges**
 - Noises in the videos, such as camera zooming can lead to incorrect detection of valence and arousal.
 - Age biases have been problematic for emotion detection of older adults as the models are often trained on samples of younger individuals with less representation from the older populations.
- **Overall Challenges**
 - There is a lack of standardisation of videos and transcripts in the dataset.
 - Because the models are not trained on the same dataset, unbiased comparison between media is not possible.

Future Research

- Further analyze emotional nuances in multi-language testimonies (visual, auditory, textual).
- Unearth emotional signal differences based on diverse experiences (e.g., survivors vs. witnesses, women vs. men, adults vs. children).
- Recommendations for pre-selection and transcript creation (computational methods): Follow precise technical guidelines for completeness, close-range shots, and clarity.
- Ensure proper transcript formatting, including clear distinction between interviewer and interviewee.

References

- Eustace, N., Lean, E., Livingston, J., Plamper, J., Reddy, W. M., & Rosenwein, B. H. (2012). AHR Conversation: The Historical Study of Emotions. *The American Historical Review*, 117(5), 1487–1531. <https://doi.org/10.1093/ahr/117.5.1487>
- Waxman, Z. (2012). Chapter 7. Transcending history? Methodological problems in Holocaust testimony. In D. Stone (Ed.), *The Holocaust and historical methodology* (pp. 143–157). New York, NY: Berghahn Books. <https://doi.org/10.1515/9780857454935-009>