Brasília Surveillance Camera Images: Dissenting Narratives of Art, Architecture, and Digital Culture

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Abstract

The Digital Collections and Research project, funded by Fapesp, aims to develop AI-based methodologies and a theoretical framework for museum collections and digital documents. Our initial focus is analyzing images captured by 33 security cameras, documenting the events of January 8, 2023, during a coup d'état orchestrated by the Brazilian far-right. These images serve as crucial artifacts in our exploration of digital archives. Beyond their role in ongoing judicial proceedings, this extensive collection highlights the impact of social documentation in the contemporary memory culture. These images, typically crafted for short-term deletion and restricted access, offer insights into alternative narratives surrounding political events. Furthermore, they spark creative explorations across art, architecture, and design domains, challenging traditional boundaries of expression and institutional sites. Delving into this collection prompts reflection on the aesthetics of memory and media art, urging a reevaluation of how distributed digital archives shape our understanding of historical events. Specific methodologies employing AI to manage vast amounts of video data have been developed, a promising utility for future researchers and artists. Our analysis spans various facets of the images, exploring their social documentation profile, the transition from recording to archive, their views of architectural and design heritage sites, and their status as native-digital archives. Through these cameras, we delve into the unique views of Brasília, a UN World Heritage Site, exploring the surveillance images' role in documenting modernist art, architecture, and design. Our study extends to the aesthetics of surveillance, exploring the media archaeology revealed by the array of surveillance cameras used. Previously disposable images, as security cameras usually are, now offer new political and aesthetic dimensions. Reflecting on disposable images as potential residual archives presents challenges and opportunities, reshaping our understanding of native digital documentation. Leveraging AI and speculative design methodologies opens new avenues for interpretation and analysis, contributing to constructing more complex and meaningful narratives. Our project underscores the importance of these non-human images captured by surveillance cameras in reconstructing dissenting narratives of art, architecture, and digital culture in historical events, presenting fertile ground for interdisciplinary innovation and future research.

Introduction

The Digital Collections and Research project, funded by Fapesp, is dedicated to developing methodologies and a theoretical framework for museum collections and digital documents. An initial focus of our endeavor is the analysis of images captured by 33 security cameras that registered the 24 hours of January 8, 2023, during a coup d'etat promoted by the Brazilian far-right after their electoral defeat. These images have emerged as pivotal artifacts in our exploration of digital archives.

Beyond their crucial role in the ongoing judicial proceedings against the coup plotters, this extensive collection underscores the profound impact of social documentation within digital systems. Images crafted for short-term deletion and restricted access, a common practice in security camera footage, provide insights into alternative narratives surrounding political events. However, they also catalyze creative imaginings and explorations across art, architecture, and design domains. In terms of the history of art, architecture, and design, they suggest we look into the uses of artworks and design objects to express social values outside their expected sites of fruition (the exhibition and the collection, or the museum). They raise questions and imagination for other narratives and the intertwining between social networks built around institutions and political alliances, as well as the history of the arts.

In this perspective, by delving into this collection, we aim to provoke a deeper reflection on the aesthetics of memory and media art, urging a reevaluation of how digital archives shape our understanding of historical events and societal dynamics. For this purpose, we had to create specific methodologies with AI to deal with massive amounts of video hours (in our case, nearly 800 hours), which will also serve other researchers and artists in future works.

From Record to Document

Our analysis explores various facets of the images, including the transition from recording to archive, their peculiarities as architectural and design images, and their profile as native-digital files. Relevant issues include the unique views of Brasília through the cameras, the aesthetics of surveillance, and the cameras' archaeology, challenging the official

rhetoric that registers the Brazilian capital as a cultural heritage of humanity designated by UNESCO.[1]

Furthermore, our research discusses the role of images in documenting social and political patterns. For instance, the documentation of the "Brasília invasion" clearly reveals a misunderstanding of public space as a lawless territory, ignoring the role of institutions and the concept of the common good.[2]

An Archeology of Surveillance

Also relevant is our examination of the aesthetics of surveillance, exploring the media archaeology that this set of 33 different cameras reveals, covering an arch of many models and ages (from old PZT cameras to fish-eye lens devices with sound). The post-attack images thus acquire new political and aesthetic dimensions, suggesting the need to explore these disposable images as an archive and a place of digital-born memory. Our study emphasizes the importance of this kind of non-human images captured by surveillance cameras in reconstructing dissenting narratives of art, architecture, and digital culture in historical events.[3]

Disposable images as a historical source

Potential Archives

We believe reflecting on disposable images as potential residual archives presents challenges and opportunities to rethink native digital documentation. Distributed in open and closed networks, disposable images perform what we conceptualize as social documentation.

Social documentation is produced by individuals and communities in their everyday lives, often without formal concern for documentation. It is available in photos, videos, social media posts, and other materials created and shared. This type of documentation includes perspectives and voices that may be absent in official documentation. Because of this, social documentation can also challenge or complement official documentation and provide multiple views of an event or process.

In addition to revealing the nuances of contemporary visual culture and providing a unique documentation of events in Brasília, those surveillance camera images present untapped potential for methodologies based on Artificial Intelligence (AI) and speculative design resources. Its volume and some consistent patterns allow us to outline certain forms of computer vision-based cataloging that will undoubtedly facilitate access to its information and various filtering options. Combining these approaches can open new perspectives in interpreting and analyzing images, contributing to constructing more complex and meaningful narratives.

AI-based methodologies have the potential to extract patterns, identify critical elements, and categorize vast sets of visual data. By applying machine learning algorithms, we can automate image analysis, recognize behavioral patterns, and extract information about gender, race, age, and other cultural traits. This information streamlines the analysis process and allows for a deeper understanding of underlying dynamics and their relationships with other digital collections.

Simultaneously, speculative design resources provide a platform to imagine alternative futures based on available data. We can create hypothetical scenarios that explore the impact of different interventions or events, providing a more comprehensive understanding of the potential ramifications of occurrences. The speculative approach broadens our understanding and empowers us to anticipate potential developments and develop proactive strategies.

Among other possibilities, we explore[4]:

- The transition from record to archive
- The particularities of these images as documentations of architecture, art, and design of historical sites
- Their profile as native-digital archives
- The history of the uses of the Palácio do Planalto and its materialities
- Archaeology of surveillance cameras
- The visual culture of the Brazilian far-right
- The fragility of the notion of public space among us
- Glitches and blurs in the context of digital memory
- The role of the self-documentation in digital distributed archives

All those research possibilities demand the development of methodologies for classifying and analyzing an extensive repository of videos, which we chose to do using artificial intelligence resources.

Video Analysis

On January 8, 2023, during the coup d'état orchestrated by the Brazilian far-right, we processed approximately 800 hours of video footage from 33 cameras placed in the Planalto presidential palace, producing an average of 24 hours of recording per camera. Below, we outline the steps and tools we use for video analysis and processing and the outcomes we achieve in each phase.

Repository and Software Usage

We set up a repository to store codes and extracted metadata, available at <https://github.com/acervos-digitais/oito-um-utils>.The scripts and methodologies we are developing make use of open-source tools to facilitate sharing and

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[1] https://vimeo.com/883777745
[2] https://vimeo.com/883777786
[3] https://vimeo.com/883778102

[4] For essays, research findings, and information about technological development, see https://www.acervosdigitais.fau.usp.br/8-de-janeiro/.

replication. The work is mostly done using the Python programming language in addition to tools, frameworks and libraries like: Jupyter Notebooks, OpenCV, scikit-learn, and PyTorch.

Processing Steps

The following steps are taken to process the video data.

Step 0: Resizing
We resize videos to two consistent resolutions: 500x282 for online viewing and 1152x648 for analysis. This process is carried out using ffmpeg with appropriate commands.

Step 1: Timestamping
We extract timestamps from the videos using Optical Character Recognition (OCR) techniques with OpenCV pre-processing.

Step 2: Summarization
We achieve scene summarization by identifying moments of movement and action in the videos using techniques such as keyframing and keyframe analysis. We explore strategies such as those offered by Katna, OpenCV, and vframe.

Steps 3: People Analysis
By analyzing moments of movement in the videos we extract information about people and their activities. We investigate strategies to determine the number of people, their characteristics (such as clothing color, gender, and age, where possible), and the activities they are engaged in.

Steps 4: Objects
We analyze moments of activity in the videos to extract information about moving and static objects using image processing and object classification models.

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Step 5: Navigation Interface
We develop an interface to allow efficient viewing and navigation through the large volume of processed videos.[5]

Conclusion:

AI and Speculative Design Methodologies

By integrating AI and speculative design, we can transform the surveillance camera images of the Brazilian far-right riot into dynamic sources of information, going beyond mere documentation to build interactive narratives and explore the diverse layers of meaning.

This convergence of technologies offers an innovative approach to analyzing historical events, contributing to a more holistic and multidimensional understanding of the interaction between society, culture, and public space.

Therefore, we envision preserving and interpreting images as a digital archive and creating an interdisciplinary context where AI and speculative design collaborate to unravel the complexities of these visual records, promoting a more advanced and proactive approach to analyzing significant events. This is fertile ground for innovation, where emerging technologies intersect with cultural narratives to build bridges between the past, present, and future.

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[5] Thiago Hersan, a research member of our team, developed this project's video analysis. In addition to the tools and techniques described, various resources and references, including libraries, scientific articles, and similar projects by other researchers, were consulted for the development of the project.

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Giselle Beiguelman is an artist and professor at the Faculty of Architecture, Urbanism, and Design of the University of São Paulo. She is a co-author of *Boundary Images* (University of Minnesota Press, 2023), among others. Museum collections in Brazil and abroad, like ZKM (Germany), MAC-USP, and Pinacoteca de São Paulo, include her artistic works. She coordinates the Group of Art and Artificial Intelligence at USP. In her recent projects, she has investigated the construction of colonialist imaginaries in arts and sciences using artificial intelligence resources. She has received several national and international awards and coordinates the Fapesp Thematic Project Digital Collections and Research. Personal website: desvirtual.com.

Eduardo Costa is a professor at the Faculty of Architecture, Urbanism, and Design of the University of São Paulo. He holds a degree in Architecture and Urbanism and a Ph.D. in History from the State University of Campinas, where he also conducted postdoctoral research. In addition to numerous articles, he has authored books such as *Visual Culture and History* (Alameda, 2016), *Archive, Power, Memory: Herman Hugo Graeser and the Photographic Archive of IPHAN* (Alameda, 2018), and *Archives, Memories of the City, Historiographies of Architecture and Urbanism* (FAUUSP, 2021). Eduardo specializes in visual culture, architectural history, design history, heritage, and archives.

Ana Gonçalves Magalhães, an art historian and curator, currently directs the Museum of Contemporary Art at the University of São Paulo (MAC USP). As a full professor at the University of Sao Paulo, her research interests include institutional history, 20th-century art, and the cataloging of art collections. Ana has published extensively, notably co-authoring *Possible Futures: Art, Museums, and Digital Archives* (2014) and *Boccioni in Brazil: Reassessing the Material History of 'Unique Forms of Continuity in Space'* (2022). She has been an advisor for organizations such as FAPESP and a visiting professor at several international universities. Ana's contributions span academia and museum practice, reflecting her art history and curation expertise.