

Elevating Archivists with AI: A New Approach to Photo Archive Description

Jatniko Nur Mutaqin
Tasdik Eko Pramono
Achmad Dedi Faozi

ABSTRACT

National archival institutions are facing a significant challenge in managing and describing millions of continually growing photo archive collections. This challenge includes a heavy workload for a limited number of archivists, consistency in descriptions, and incomplete information in many photos. The description process consumes significant time and resources. With the aid of artificial intelligence technology, we have the opportunity to transform the way we describe photo archives, adding value to archival institutions, and unlocking unprecedented access to these valuable collections. AI, acting as a professional archivist, assists in the process of describing photo archives with minimal intervention.

This research utilizes generative AI, NLP, and large language models like GPT, which have the ability to understand and generate text in various contexts. This approach involves low-level visual semantic extraction to identify essential elements in photos, and high-level reasoning with GPT to produce accurate and consistent descriptions based on these elements. This research also employs the Adversarial REward Learning (AREL) framework to mimic archivist behavior, thus generating more human-like descriptions and enabling self-description.

Preliminary results show that AI can produce accurate and consistent descriptions for various types of photos, and also consider historical context. Although there are limitations, such as AI's ability to understand complex historical contexts, further research is being conducted to improve and expand this approach.

The significance of this research is immense, the task of describing photo collections can be completed efficiently, facilitating archive discovery, and providing new insights into photo content and context. With AI, we can bring our photo archive collections into the future, ensuring they remain relevant and accessible for future generations. This is a significant step towards a more efficient and inclusive archival future, with AI acting as a game-changer, elevating archivists to a higher level and enabling them to undertake creative and strategic work.