

MORE THAN MEETS THE (ARTIFICIAL) EYE



EXPLORING HISTORICAL PHOTOGRAPHS FROM IRELAND WITH COMPUTER VISION METHODS

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Background

Historical photographs are complex artifacts that may hold multiple meanings, depending on the viewer. They serve as a record of people, places, and events,¹ and their **digitisation adds another layer of complexity to their interpretation**. However, this process also removes some of their physical properties and alters their relational values.² Memory institutions are increasingly interested in using Artificial Intelligence (AI) to enhance their digitised collections,³ which may lead to the need for external expertise in dealing with these tools - a skill that many practitioners from digital humanities already possess. While digital preservation professionals' training is starting to address this demand, the **traditional curatorial approaches** of memory institutions **continue to shape the pre-existing digital standards** and data models.⁴

AI technologies have shown their potential to facilitate the enrichment of digitised photographs by enabling greater control and description at item-level. These technologies have influenced understandings of visuality⁵ and contributed to the emerging field of visual digital humanities,⁶ although the wave of generative AI models may significantly impact this landscape in the near future.

Research question

Is there certain degree of **conceptual and practical compatibility** between existing curatorial practices in memory institutions and available Computer Vision (CV) workflows? This poster seeks to address this question by considering **openly licensed digitised historical photographs from the Irish context**. It presents initial findings from the first author's PhD project, which explores the implications of accessing and reusing digitised collections for CV tasks.

A matter of "alignment"

The results of our previous studies^{7,8} suggest a partial decoupling between current digital preservation practices and AI, apart from some difficulties in outlining the role and scope of human-machine collaboration.

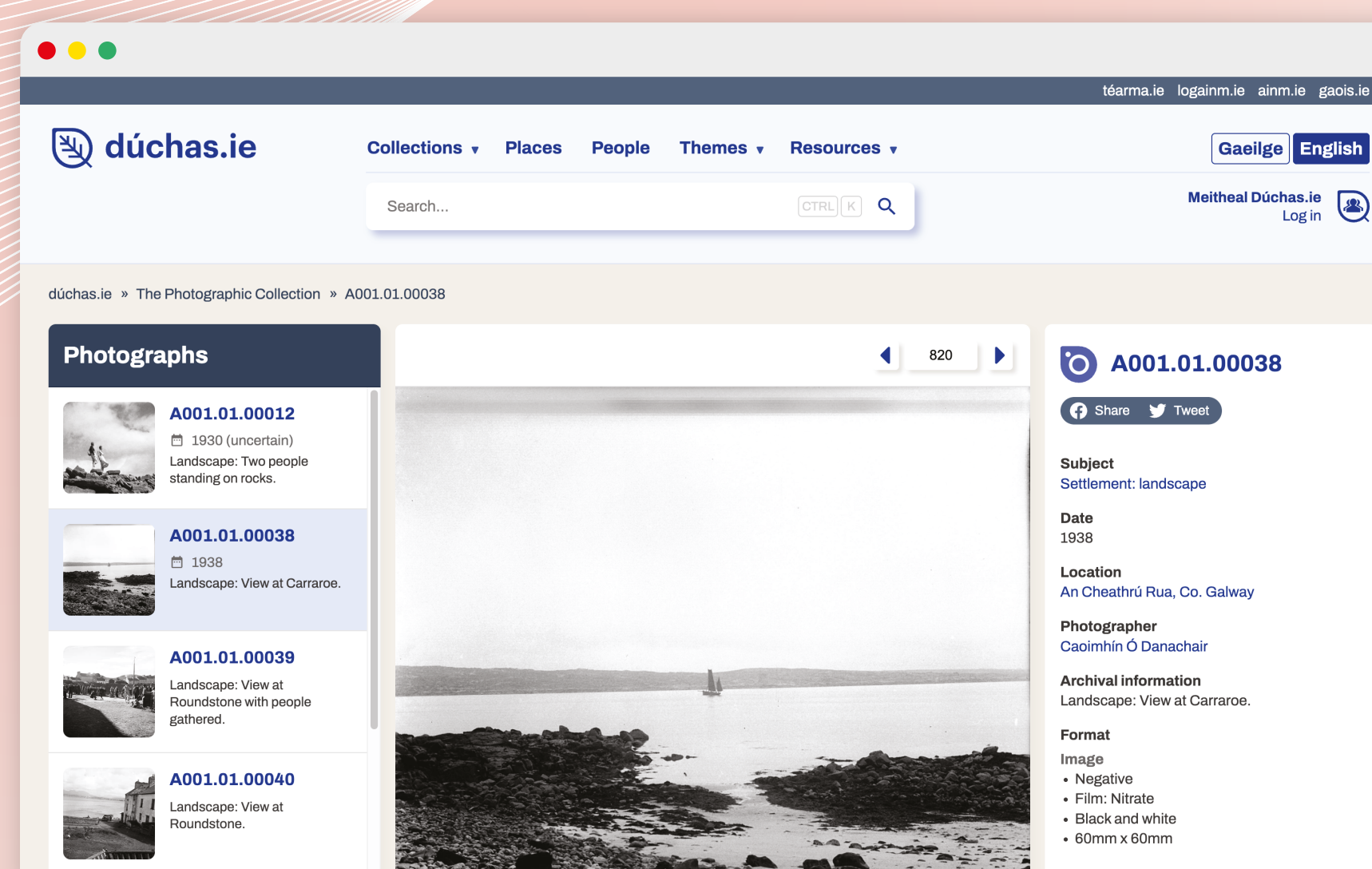
The spread of the 'Collections as Data' movement⁹ in Europe could facilitate a more open and shared dialogue between the different communities working with AI and socio-cultural datasets.

Materials & methods

A subset of the **Photographic National Folklore Collection** resulting from the University College Dublin digitisation project and some of the thematic photosets from the **National Library of Ireland's Flickr** profile were retrieved and explored using data mining. Voxel51's FiftyOne is the open source toolkit currently used to support the workflows and facilitate the curation and visualisation of the dataset - as well as evaluating the performance of the CV models and libraries in use.

The National Folklore Photographic Collection

12,000+ photographs online, no API
(last capture: May 2022)



Subject

Prefix	Theme
A	Settlement
B	Livelihood and Housekeeping
C	Communication and Trade
...	...

Themes are based on the subject headings in Seán Ó Súilleabháin's *A Handbook of Irish Folklore* (1942). The filenames always follows the theme's prefix.

Date

Ranging between 1935-70.

Location

Frequently precise, thanks to the connection with Logainm.ie, the placenames database for Ireland.

Photographer

Not always specified, although belonging to members of the Irish Folklore Commission and of the National Folklore Commission.

Archival Info & Format

Not highly informative due to redundancy, dishomogeneity or partial disclosure. Positives and negatives formats, both black and white and colour, ranging from 35mm to larger format film are documented.

Preliminary results

The work is still in progress, but preliminary results suggest that the different archival descriptions provided for the collections analysed natively do actually offer different ways of creating access points to the photographs. The occasional incompleteness of the metadata and the lack of information on the pre-digitisation evaluation process limit the interpretability of the photographic collections and therefore the potential CV applications.

The toolbox

Most of the data work has been done in Python, using Jupyter Notebooks to build and document the pipelines to retrieve/mine the data from the web. The metadata obtained will be cleaned and filtered to obtain coherent subsets of images and associated labels, which will be curated and

enhanced using FiftyOne. One of the preliminary tasks will be to use TensorFlow Lite Model Maker to perform object detection using EfficientDet-Lite pre-trained with a subset of MS COCO dataset.¹⁰

The National Library of Ireland Collections on Flickr

3,000+ photographs online, Flickr API
(last capture: April 2022)

Albums

Several thematic albums organised with a specific narrative in mind - no use of traditional knowledge organisation tools. From 1 up to 977 photos per album.

Date

N/A (under analysis).

Location

Geo-referencing occurs for almost the 80% of the photographs.

Description

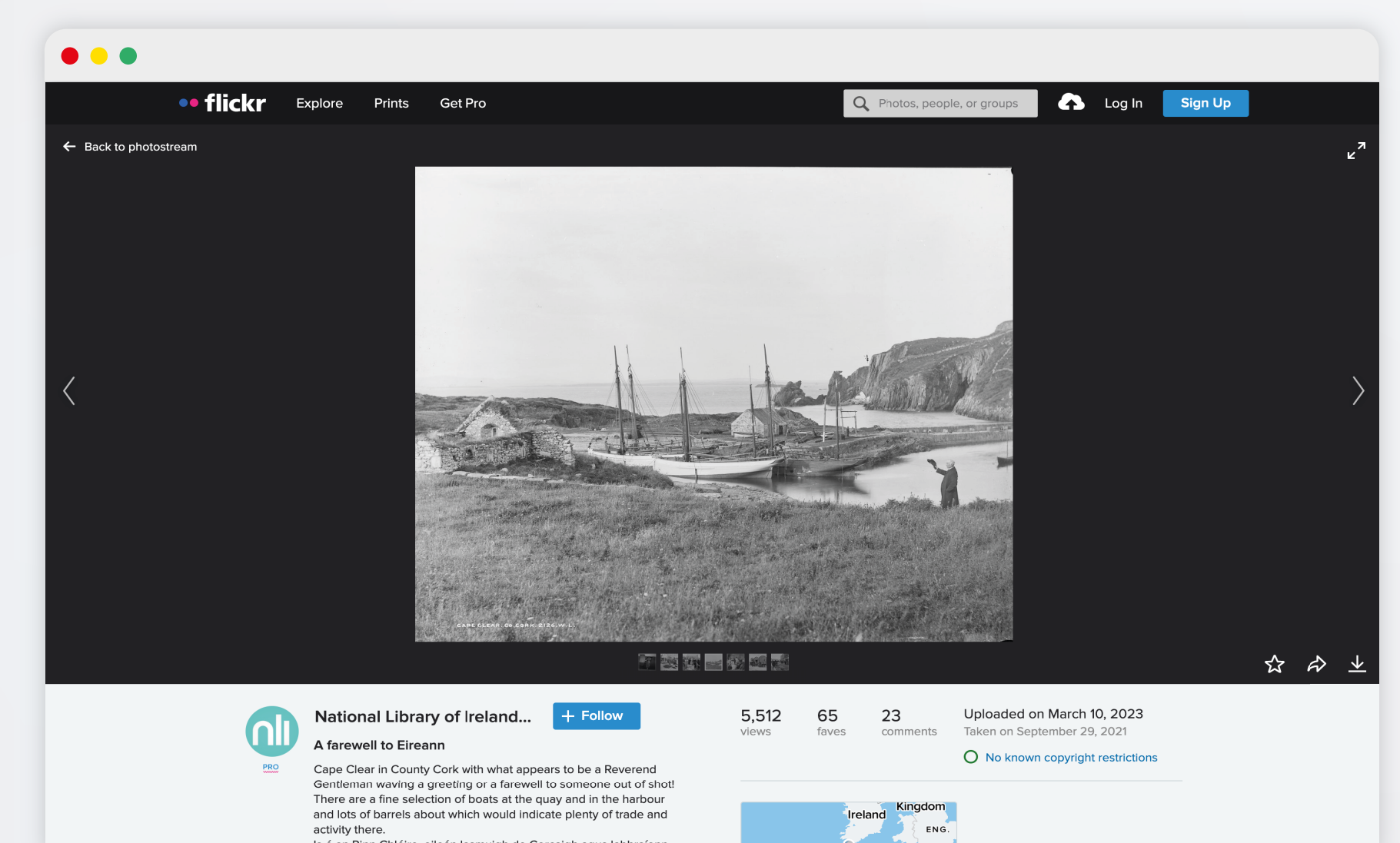
Often rich and detailed, organised as per the card here above. Noteworthy the link to the online collection on the NLI website, from which additional metadata can be retrieved.

Comments & Annotations

Users' crowdsourcing: comment threads and the annotations within the photographs are rather insightful and expand the richness of the description.

Structure

Description (no labels)
<Photographer:>
<Collection:>
<Date:>
<NLI Ref:>
Link to NLI catalogue



Affordances and future developments

A relatively simple option could be to use selected sub-themes that occur for the National Folklore Photographic Collection to generate bottom-line labels for the photographs. Once the pre-processing of the NLI photographs on Flickr is complete, the check for overlap with the National

Folklore Photographic Collection could be carried out. At the very least, having all the metadata aggregated would make it easier to involve the curators of the collections in the process, to ensure that the context is correctly interpreted.

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