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CENTER FOR AN INFORMED PUBLIC
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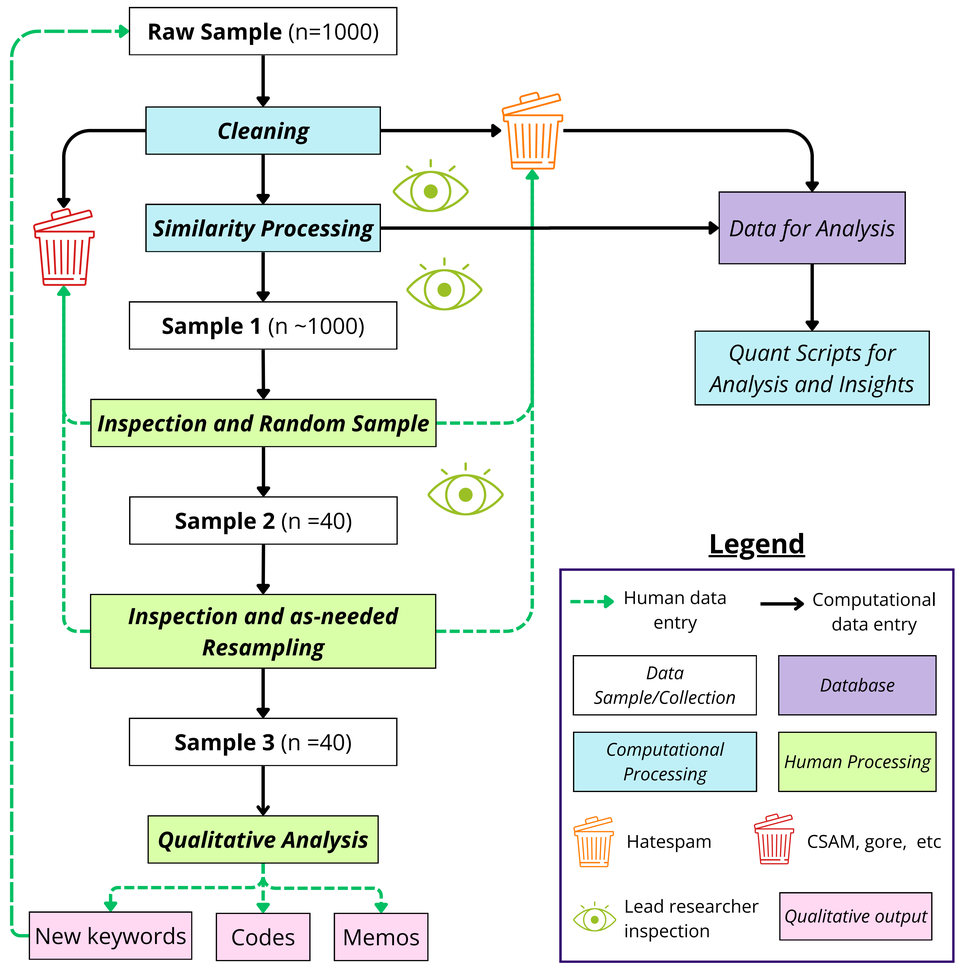
# How to See 1000 Images

## Innovative Image Analysis Methods for Problematic Information Studies

## 1. OVERVIEW

We have developed a **mixed-methods visual research pipeline** to study large collections of visual data. Our particular case study focuses on thousands of images and videos from X and TikTok that contain anti-immigrant rhetoric and misinformation at the US-Mexico land border.

We contribute a methodology for **visual-first research of social media data**, particularly for researchers of problematic Information. We elicit and demonstrate new concepts for this analysis: **1)** visual-based provenance, **2)** visual-first notions of similarity, and **3)** new computationally aided practices of care for research teams.




## 2. VISUAL BASED PROVENANCE

We leverage **native stylistic elements** of different social media platforms to trace the origins of textual posts back to Whatsapp, Facebook, Instagram, and X.


Example of our test imagery **(A)** to match Facebook provenance to an image in our dataset **(B)**

**~7.9% of images** are Facebook, Instagram, and Whatsapp text posts
**~4.8% of posts** are X screenshots

Of non-X posts, Facebook is **~78%**, Instagram at **~21%**, and Whatsapp **< 1%**

## 3. VISUAL FIRST NOTIONS OF SIMILARITY

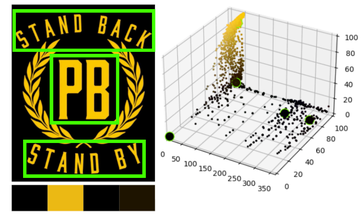
We use notions of **pixel perfect similarity** for images that are perceptually duplicates, and notions of **pixel similar images** for images that are related but have been remixed by users. Through *qualitative coding*, we also analyze **subject similar** images with the same objects but supporting different claims.

**Pixel-Similar Image Set**


**Subject-Similar Image Set**


## 4. HATESPAM AND PRACTICES OF CARE

We introduce **hatespam** as out-of-scope hateful content that is spammed into data collections by interlocking hate movements. We track this content quantitatively but do not qualitatively analyze to protect our research team.
We identify **hatespam** with color quantization and optical character recognition (OCR) cross referenced with the FBI, Southern Poverty Law Center's, ADL's, and Global Extremist Symbols databases.




OCR marked by green boxes.
Color quantization exposing ratios of colors of a hate group's logo.

## 5. FUTURE WORK AND RECOMMENDATIONS

Our pipeline is currently optimized for images, but we are actively refining our methods for video (TikTok). We hope to see more visually centered work emerge across the field. Alongside our enthusiastic recommendation for visual-based research of problematic information, we stress the imperative for new practices of care and safety in this work.

## 6. ACKNOWLEDGEMENTS

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