

ArtEureka: an Art Collection Exploration System



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1. Problem Statement

Rijksstudio (Rijksmuseum's online platform) features **727.625 artworks**, searchable through a **flawed** search engine which uses expert annotated metadata to match queries to objects, with **little to no descriptive metadata**. Furthermore, the platform **lacks any indexing** beyond this metadata. We set out to create a **recommendation system** to open the collection to more users and **enable visual-based indexing**.

3. Serendipitous Exploration

Serendipity refers to the process of finding valuable or agreeable things not sought for. A recommendation system should allow for serendipitous discovery. This prevents users from accidentally 'locking' themselves into a certain part of the collection, allows for easier exploration and through it increases user satisfaction (Kotkov et al., 2016).

4. Object Matching

A CNN trained & validated on **10K WikiArt** paintings classified 1800 Rijksstudio paintings into 36 styles, achieving **40% accuracy**. Using these classification scores, the **Cosine Similarity** was then calculated.

6. Conclusion

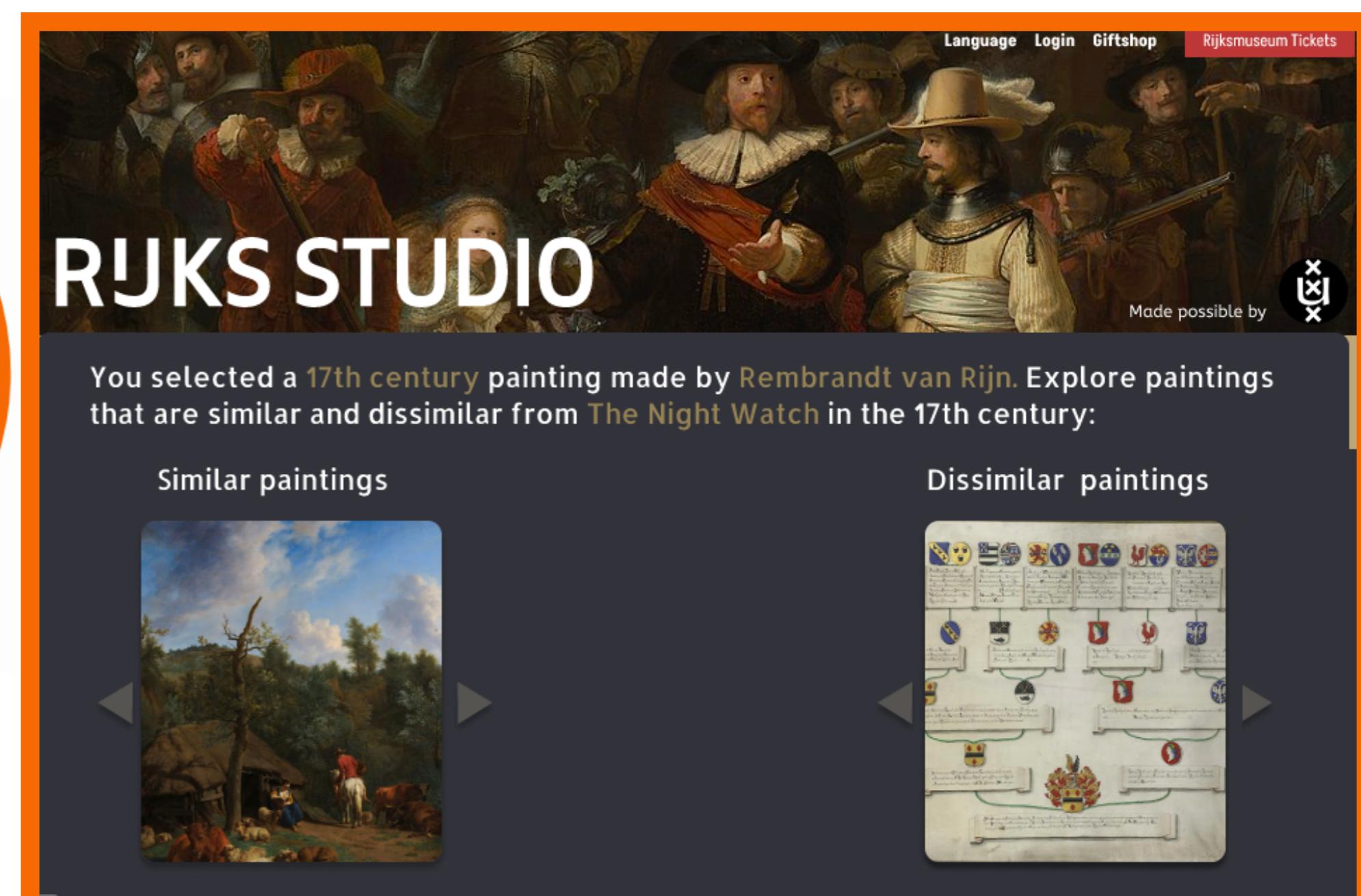
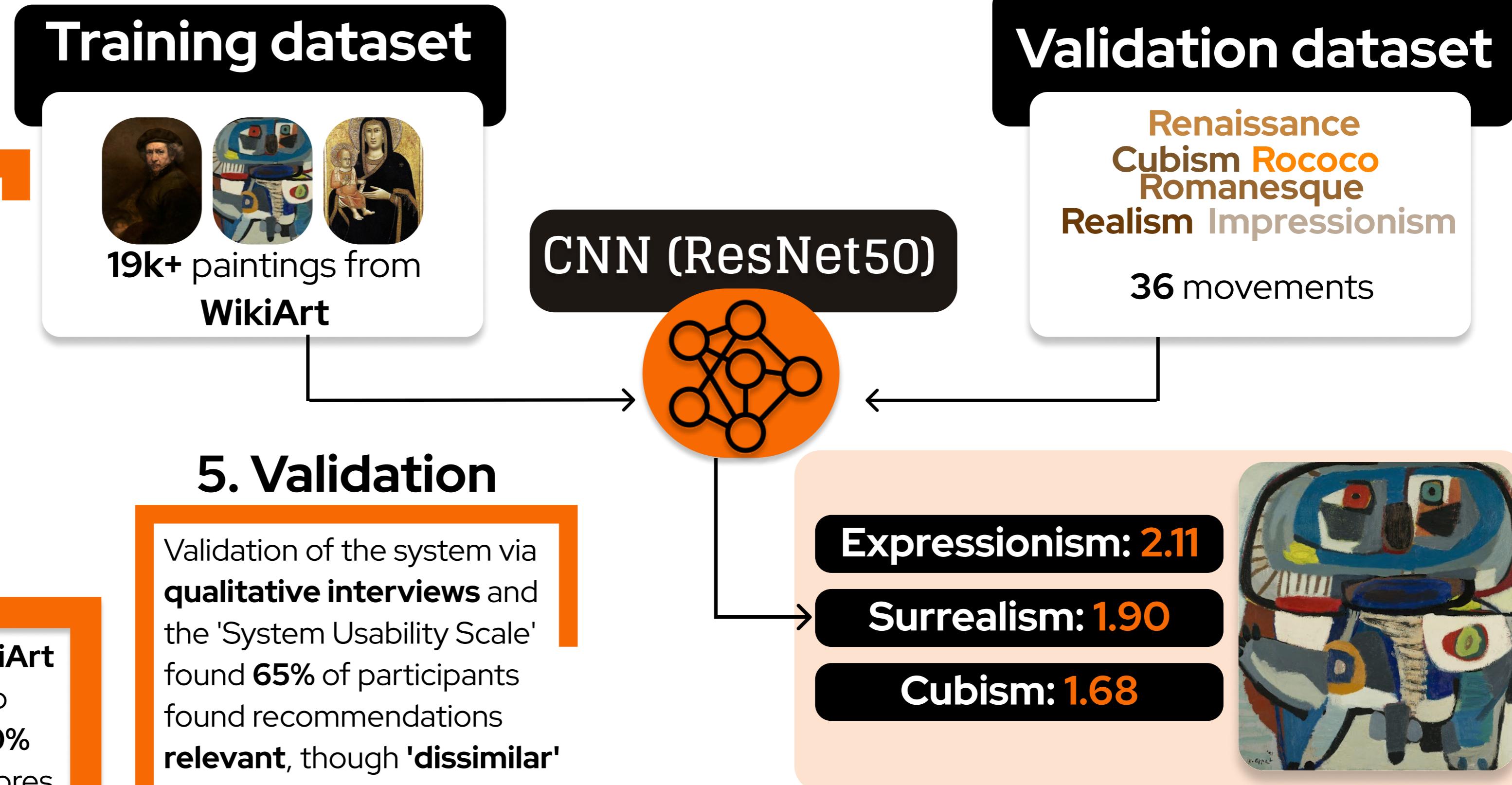
The **ArtEureka** project has resulted in a **recommendation system** which has many possible implementations. Because it uses both **metadata filters** and **visual classification** it can be used as an **exploration system**, but also as a tool to allow potential museum visitors to make a selection of the works they'd like to see within the museum. Testing shows **initial usability issues** related to the lo-fi prototypes interface and provided information.

Teaser



2. Our Solution: ArtEureka

A system for exploring the collection's paintings using **metadata filters** like 'time' and 'artist'. Once an object is selected, **similar** objects based on art style are revealed, plus 5 **dissimilar** ones at intervals of dissimilarity to enable **serendipity**. The choice to focus on paintings was made due to their **popularity** in the collection, it being viable to categorize them by **style**, and to limit the project's scope.



References

- Karwowski, W., Sosnowska, J., & Rusek, M. (2018). The recommendation algorithm for an online art gallery. *Information Systems in Management*, 7.
- Kotkov, D., Wang, S., & Veijalainen, J. (2016). A survey of serendipity in recommender systems. *Knowledge-Based Systems*, 111, 180-192.

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