

School of Informatics, Computing, and Cyber Systems

# What is the Problem?





To make it easier and more engaging to explore over 100,000 archival images

Archives (SCA) Digital



Because manually browsing or curating such a large collection is impractical for end users

## **Key Feature Highlights**

Visual Similarity Search Users can upload an image to find visually similar archival images **Al-powered Image Embeddings** Leverages TensorFlow to extract deep features from images **Fast Nearest Neighbor Matching** Quickly finds nearest image neighbors using vector search **Seamless Integration with SCA** hosted ContentDM Image Database Retrieves image thumbnails and metadata automatically **User-Friendly Web Interface** Clean, intuitive design built with modern web tools Scalable Solution for Large **Archive through AWS** Efficiently handles 100,000+ images without manual browsing

# **INSIGHT: AI-Powered Image Discovery for the Cline Library Special Collections and Archives**

Team: Joshua VanderMeer, Michael Vertin, Aidan Hebert, Forrest Hartley **Client:** Mike Taylor, Technology Strategies Head, NAU Cline Library

### How it works







**Users**: Upload an image via the web app to quickly find the most similar items in the collection.

SCA Employees: Add newly acquired images to the vector database, keeping the archive's content current.

**SCA Developers**: Maintain and enhance the codebase using provided documentation, ensuring continuous improvements.

### Architecture

- **Tech Stack:** Full stack architecture utilizing React, Express & Node.JS
- Database & Machine Learning: Milvus, Hugging Face, PyTorch

### Technologies



### Outcomes

Our web application equips the Cline Library with a robust set of tools that both researchers and the broader NAU community can leverage to quickly find images that closely match their queries. By enabling visual search across thousands of archival images, the system dramatically improves access to NAU's Special Collections and Archives, making discovery faster, more intuitive, and more inclusive ultimately transforming how users engage with historical materials.



### **Team Mentor:** Scott Larocca

Searching & Machine Learning Tasks

