# Researcher Bi-Weekly Reporting Template

The purpose of this document is to help prompt reflection and capture the progress, barriers, and needs you have as you undertake your project. We’ve included some preferred and suggested prompts in each section below. This document is to be completed every two weeks and submitted according to the reporting schedule.

Please append the filename with the date of submission and your initials (ex: CCHC-Biweekly-Reporting-Template-**2021-06-01**-**od**.docx). Once completed, please submit to [**LC-Labs@loc.gov**](mailto:LC-Labs@loc.gov)and CC Jaime Mears ([jame@loc.gov](mailto:jame@loc.gov)).

**Name:**

**Reporting Period: 3: 6/28/2021-7/9/2021**

### No Work Completed

We anticipate that there may be periods in your project during which you make little progress. In this situation, we ask you to check the “Nothing to report” box. After the “Reason” prompt below, please briefly indicate why there was nothing to report. Where possible, we’d still like to learn more about the reasons behind any unexpected events or barriers you encounter. You can share additional details in the “Obstacles/Needs” section before submitting this report.

☐ Nothing to report

Reason:

### Activity and Progress

*We’d like to hear about your progress over the last couple of weeks. Please feel free to expand on the questions below.*

1. **What did you and your team work on over the last two weeks? Why?**

*We’d love to hear about your decision-making, the technologies (ie. cloud services, hardware, and software) you’ve been using, why you’ve adopted them, modifications or hacks you’ve had to create, prototyping and testing, and anything you’d like to share about your current in-progress deliverables.*

We worked on applying image embedding algorithms to the collections to figure out image similarity. The idea is to identify which image is like another and use the results for a recommender system in the visualizations. We used InceptionV3 and VGG19. They are two different neural network models. One difference is that InceptionV3 is all convolutional until the very last level. It cares less about the context and more about the texture. For example, let’s say we are looking for a lake. VGG19 will look for color as well as have some expectations for where the lake will be on the image. Inception is less likely to rely on the part of the image where it thinks the lake is. It will focus more on whether it thinks it’s a lake or not and thinks it can figure out where something is even if taken in a less than expected way. So, it is more likely to think the sky is a lake. There are trade-offs for both of these models, and hoping to harness their strengths for the recommender system.

Both are trained on ImageNet and available on Keras, which makes them much easier to use. (Well getting TensorFlow and Keras can be a pain, but this tech set-up is a pain and needed for most CV tasks at this point. So there is no getting around it.)

1. **What are your plans for the next two weeks? What excites you about those plans?**

Next week, we are going to apply detectron-based algorithms to the collection (i.e. face detection, thing-stuff).

### Obstacles/Needs

1. **What barriers, if any, have you encountered over the past two weeks? Were these barriers expected?**

*Examples: unexpected costs; API limitations; organizational barriers; data issues; technical gaps or challenges; collections knowledge.*

Image embeddings are a popular approach, but there is not a lot of guidance on which methods are the best. There isn’t really a culture of talking about which is better for which tasks and evaluating them.

1. **What would resolve these barriers (or would have resolved them, in retrospect)?**

*We’d love to know what you need help with! This is an opportunity for LC staff to learn from you about how to best support this work going forward.*

For this project, we decided to run two embedding models. We will then test and compare results. We decided to do this following some past experience trying to navigate which model to use. In the past, we ran one and then decided it didn’t work great or worked great in certain ways but not another. So, we then ran another. This time, we just decided to do two of them at once and then we will compare.

One thing that I think will be helpful is work like ours that will describe in a final paper which models worked well (and didn’t) and why we used them. This will at least contribute to the conversation. I could imagine a symposium or set of meetings just discussing the opportunities and challenges of different models among cultural heritage institutions (ex. British Library is also working on this and colleagues at Carnegie Mellon libraries). I thought the AV Summit held by LOC was really important and one of the first major initiatives like that. It would be great to host more of these, and I’d be happy to help in any way!

1. **What changes, if any, do you anticipate to your proposed timeline? Why?**

*Do you expect any significant blockers to your progress?*

None at the moment.

### Reflection

1. **What happened over the last two weeks that was particularly thought-provoking?**

*Examples: surprises; places where help from Library staff was critical; incorrect assumptions; things you learned; things that, in retrospect, you wish you’d known.*

Two events this week were particularly thought provoking.

1. I attended the Rijks Museum Open Up The Morgue! Symposium on July 2nd. I was asked to speak about Photogrammar and ended the presentation mentioning the LOC’s CCHC initiative. Hopefully, this might lead to some interesting connections. Most importantly, I listened to a series of great talks about early 20th century photography, with a specific focus on new photo archives. It was a delight to listen to some great photo historians talk about their work and the kinds of questions that they are asking. It was also productive to hear from some skeptics of computational approaches to analyzing images. I wasn’t always convinced by some of the critiques, such as an assumption that using computational approaches is in lieu of actually looking at the photos which the speaker then proceeds to critique, but it is helpful to understand that such assumptions are still prevalent. The talk by Nanne van Noord on machine learning with iconic images offers a nice intro to some of the approaches (Note: There are uses of images and examples that could have used some warning and been more carefully presented and selected). One of the most exciting talks was from the New York Times about their efforts to digitize their photography collection, which has a lot of similar challenges to the FSA. I was left wondering if the NYTimes folks had chatted with the LOC folks in charge of the FSA collection. The challenges seemed really similar, and the experience of both projects seems instructive for future initiatives. There challenges with ML really peaked my interests and I’m hoping to connect with me!
2. The group CCHC conversation on Friday was great. It was fun to hear about the other projects and speak directly with Andromeda and Lincoln about their work. It was also interesting to hear their ideas and what excited them. I found it particularly productive, for example, answering Lincoln’s question about the thing-stuff algorithms and the epistemological shift that the algorithm offers. It forced me to articulate the stakes of the shift in a way that I hadn’t quite yet. It was also fun to discuss tech stacks with Andromeda and to hear about her work on HAMLET. It was nice to learn that we will both be working through data viz challenges as well.
3. **Anything else you’d like to add?**

If others are interested, the Open Up The Morgue! Event video is available online (at least for a week or so but maybe longer): https://www.rijksmuseum.nl/en/whats-on/lectures-symposiums/open-up-the-morgue/join-the-symposium/story/livestream-open-up-the-morgue?utm\_campaign=uitnodiging&utm\_medium=email&utm\_source=20210702\_livestreamlink\_symposium\_fotojournalistiek