

CS 410 Course Project Proposal

Project Proposal:

Utilize docker to create a container which will run the Meta Toolkit out of the box. This will allow users to pull the docker image which will have all the correct dependency versions of python and metapy installed and make it much easier to get up and running using the toolkit. Leveraging docker will get rid of the headache of having to install specific python versions to maintain compatibility with metapy and allow a consistent experience across different platforms such as MacOS and Linux. It will also allow the user to not worry about the specific versions of software necessary for metapy affecting other projects on the machine.

1. What are the names and NetIDs of all your team members? Who is the captain? The captain will have more administrative duties than team members.

I am working alone and am the captain. My netid is art5.

2. What system have you chosen? Which subtopic(s) under the system?

I have chosen the Meta Toolkit specifically enhancing its usability.

3. Briefly describe any datasets, algorithms or techniques you plan to use

N/A

4. If you are adding a function, how will you demonstrate that it works as expected? If you are improving a function, how will you show your implementation actually works better?

I will show my implementation works better by showing the steps necessary to get metapy running without docker and comparing it to the docker implementation.

5. How will your code communicate with or utilize the system? It is also fine to build your own systems, just please state your plan clearly

The docker container image will be pushed to DockerHub to allow any user to download and use the image with one command.

6. Which programming language do you plan to use?

I plan on using dockerfile, shell scripts, and potentially some python.

7. Please justify that the workload of your topic is at least $20 \cdot N$ hours, N being the total number of students in your team. You may list the main tasks to be completed, and the estimated time cost for each task.

Main tasks to be completed which should take at least 20 hours:

- Get docker up and running and create base dockerfile which will contain information to create image. Est time: 5 hours
- Find optimal dependency versions as metapy does not work with latest versions of python and numpy. Create shell scripts to install correct dependency versions of python, numpy, and metapy. Est time: 15 hours
- Publish docker image to DockerHub. Est time: 2 hours