

# DLRM Optimizations on TPUs Milestone 1

07-400

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## 1 Major Changes

Not many major changes so far. The only roadblock so far is getting in contact with the google team that is collaborating with Professor Vinayak on the project. We are still in the process of setting a weekly meeting day because of that, but I do not foresee it affecting my currently set milestones.

I have also recently been introduced to professor Vinayak's PhD student, Jason Yang, who is working on a similar project; he is working on the space optimization of DLRM, so we have compiled our current literature review together.

## 2 What I Have Accomplished Since My Last Meeting

I have learned tensorflow as well as the recommender tensorflow library. Additionally, I was able to read more about DLRMs in depth, thanks to professor Vinayak's recommendation of a published paper detailing DLRM experiments at Facebook that was not on my radar. I am currently in the process of building the DLRM with the recommender library, and I will run baseline tests.

## 3 Meeting Milestones

I have met most of my milestone requirements. The only part of my milestone that I need to make progress on is the implementation of DLRM with recommenders. I had previously assumed we could simply use the pytorch open source implementation of DLRM, but I believe the TPU architecture requires tensorflow. I should be able to complete the model before the week is over.

## **4 Surprises**

My main surprise were the people involved with the project idea. I had previously thought that it was just Professor Vinayak, but it turns out there is a team at Google who are interested in this as well. This was more of a good surprise, and I am excited to continue to work on this project.

## **5 Looking Ahead**

Looking ahead, I will keep in mind deadlines; it seems much easier to push off work due to the nature of this class and research. I also should make more of an effort to reach out to professor Vinayak and Jason whenever I read something cool and provide more frequent updates even if they are small.

## **6 Revisions to Future Milestones**

At this time, I believe no ammendments to the milestones are needed. After establishing more of a regular meeting time, I believe I will have a better idea on how much more/less ambitious I can be with my milestones.

## **7 Resources Needed**

I need google cloud credits and test datasets, which the google team will apparently provide me.