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# Thesis Defense, Nicolas Carrara

**Nicolas Carrara** <nicolas.carrara1u@gmail.com> 6 décembre 2019 à 19:12
À : ROJAS BARAHONA Lina Maria IMT/OLS <linamaria.rojasbarahona@orange.com>

Hello Lina,

Here my responses:

Le mer. 4 déc. 2019 à 16:02, <linamaria.rojasbarahona@orange.com> a écrit :

> Bonjour Nicolas, (I will switch to English)
>
> I have read your PhD thesis, here are some comments/questions:
>
> Page 20 deepQA is never introduced

01 colas Carrara

Do you mean I have to explain it a bit?

> Chapter 5, There is not clear what is the difference between domain, task and user. I understood a task = an user, is that right? Then what is a domain?

A task is a generic MDP to solve. In some settings, a task= a user, in some others a task= a domain. A domain is like "restaurant", "cinema" (bottom of page 47) or even restaurant with 3 slots to fill versus restaurant with 4 slots to fill (top of page 48)

> Page 47: in “The setting” you wrote : …. “whereas the domain Su, Au is fixed between the task …. The difficulty lies in the mapping between those two tasks;” my question is which tasks?

Ok, I realize there is a big problem with the taxonomy. Actually I use "domain" for several concepts. A domain is SxA in the transfer learning setting. And a domain is restaurant/cinema/etc in the dialogue system setting. This is a name overriding that I will fix, thank you!

02 colas Carrara

> Page 57 Notation in Equation 6.1, the Manhattan distance is never explained, nor the notation of norm 1.

03 colas Carrara

> Chapter 6, Page 61, “Human-model users require an approximate representation, or projection …. The dialogue state representation is defined as a vector of the 2+3” (2+3?)

Something is wrong, but the size of the feature depends on the number of slots (N_tau), it's actually something like 1+3N_tau+ 3N_tau + 3N_tau+1, so 2+ 3x3xN_tau. A 3 was missing.

04 colas Carrara

> Page 63-64-65, How many dialogues are generated per source system? 1200, so at the end you have a total of 120000 dialogues across the 100 source policies?

Yes exactly.

> What is the relation of the results presented in Figure 6.3 and the Figure 5.1? Does the proposed transfer learning approach improve the jumpstart phase?

The figure 6.3 is an average of all 3 phases to measure the overall improvement. But a deeper analyze between phases would have been more appropriate.

> Chapter 7, Did you report results of these experiments, or you just analyse the limitations/unfeasibility of this approach.

It was my last work in progress, I did a lot of not working experiments and I wanted to report them in the manuscript, but as they were not working (and I was trying to make them work!) I didn't save the proof of the negative results.

> Chapter 8. Figure 8.4, can we claim that Risk Sensitive reach in general a better return than risk neutral ? It is not clear what is the budget limit (Beta) at each region in Figures 8.4 bottom, 8.5 top.

There are several budgets (the values next to each dot is the budget). From this sole example, we can't really say that is better in general, but we gave a good intuition on when it seems necessary to explore several budgets to reach optimality. The risk-neutral approach will necessarily miss some opportunities by exploring only the areas that seem the most profitable at a time.

> Figure 8.5, Can we claim that BFTQ has lower variability than FTQ?

Experimentally it seems so. Unfortunately, I have no intuition/theoretical explanation for that.

> Is the work you published in the Workshop on Safety Risk and Uncertainty in RL and in the European Workshop on RL presented in the manuscript? I remember you made experiments on a Game, I think I have not seem them in the manuscript.
>
> Is this work replaced by the work you published in NeurIPS (presented in Chapter 8)?

Yes it replaces it. It was originally tested on a 2D world but back at that time, a lot of stuff was missing, so instead of plotting results from an old implementation/solution, I prefered to skip those results and plot the most recent experiments.

> Congratulations on your great work.

Thank you! And thanks for the remarks, I will fix those mistakes :)

[Texte des messages précédents masqué]

# Thesis rapport Lina

Carrara, Nicolas; Barahona, À Rojas; Maria, Lina; Ols, I M T; Lina, Hello; Nicolas, Bonjour

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