



[Issue #8](#) (open): [DECISION] Probably Approximately Correct Learning: a machine learning game 06-07-2024

[@leibatt](#) on
Jun 07, 2024 23:25: [opened]

[@leibatt](#) on
Jun 07, 2024 23:25:

Conflicts of interest

- ☒ I declare that I have no known conflicts of interest with the authors.

Reviewed version

cc82db3f926b33545925eacf5418729865c205b5

Reviews summarized

- R1 [#5](#)
- R2 [#6](#)
- R3 [#7](#)
- Accessibility [#10](#)

Meta-Review

Overall, the reviewers agree that this article is well motivated and makes a valuable contribution as a general introduction to PAC learning. That being said, all of the reviewers mention specific revisions they believe are necessary prior to publication. Given that some concerns were raised beyond basic text changes, I believe this submission currently falls between a minor and major revision, which is also reflected in the decisions of the reviewers. For this reason, I suggest the more conservative decision of major revisions.

Revisions to focus on for the next round of review include:

Interactive Game

Reviewers seemed to be most concerned about the clarity and behavior of the interactive game. - At a high level, R1 and R2 request more details and instructions on how the game works in the introduction ([#5](#), [#6](#)). - At a low level, several technical issues were raised. R2 notes that the fade in animation for points can be confusing ([#6](#)). R3 perceived a difference between the points displayed thus far and the final set of points displayed after clicking the "TEST!" button ([#7](#)) I noticed that when no rectangle is drawn in the game, an error is thrown when I hit the "TEST!" button. R1 and R2 observed a similar issue ([#5](#), [#6](#)). - These suggestions are optional, but reviewers also mentioned potential enhancements. For example, R3 suggests visualizing true/false positives and negatives to enhance clarity ([#7](#)). R1 also suggests some enhancements to make the game more personalized and game-like ([#5](#)).

Article Clarity

Apart from the game, reviewers mentioned certain sections/arguments in the article that could be clarified. - R1 and R2 find the Introduction -"Why this is important" section to be a bit too abstract ([#5](#), [#6](#)). Further, R2 finds the current positioning of the Gender Shade example to be confusing/misleading ([#6](#)). - R2 would like to see a clearer explanation of the visualization in the game within the article text ([#6](#)). Similarly, R1 recommends labeling relevant variables within the visualization to clarify their purpose within the text ([#5](#)). - R1 finds the "Assuming the Worst" title to be misleading, and recommends framing this section in terms of adversarial examples ([#5](#)). - In terms of clarifying concepts, R3 asked whether toughest fit error may have a more general explanation in terms of sum of error rather than precise fractions of epsilon ([#7](#)).

Styling

While styling was not a major concern for reviewers, they all mentioned specific styling issues that could be improved. - R1 points out that the text and the visuals may not always be aligned correctly (#5). Similarly, R2 finds that the game may update too early in response to article transitions (#6). - R3 notes that some article styling breaks in the absence of an internet connection (#7). R3 also makes multiple (minor) suggestions for fixing typos and improving the overall styling of the article (#7).

JoVI Required Materials

- In my initial review, I noticed that there is not a long-term archive mentioned in the Abstract and Required Materials (#2).
- [OPTIONAL] I noticed there is no Table of Contents section (#2). Please include a Table of Contents or let us know if this will remain omitted.

Accessibility Review + Changes

- Many of the accessibility checks are covered but some areas can be improved (#10):
 - Some colors may be low contrast/difficult to perceive (especially red and green points in the game). When possible, avoiding reliance on colors is recommended.
 - Some icons and buttons are missing alt text.
 - The article does not appear to be responsive to different window sizes or form factors (such as reading from a phone).

Decision

Major revisions: this paper requires substantial improvements that I will need to re-review to decide whether or not to endorse it.

@leibatt on
Jul 09, 2024 01:53:

@dylancashman We now have the accessibility review! I have included it in the meta-review.

@dylancashman on
Dec 01, 2024 02:19:

At a high level, R1 and R2 request more details and instructions on how the game works in the introduction (<https://github.com/journalovi/2024-Cashman-PAC-learning-game/issues/5>, <https://github.com/journalovi/2024-Cashman-PAC-learning-game/issues/6>).

Improved introduction in #11

@dylancashman on
Dec 01, 2024 08:25:

At a low level, several technical issues were raised. R2 notes that the fade in animation for points can be confusing (<https://github.com/journalovi/2024-Cashman-PAC-learning-game/issues/6>). R3 perceived a difference between the points displayed thus far and the final set of points displayed after clicking the "TEST!" button (<https://github.com/journalovi/2024-Cashman-PAC-learning-game/issues/7>) I noticed that when no rectangle is drawn in the game, an error is thrown when I hit the "TEST!" button. R1 and R2 observed a similar issue (<https://github.com/journalovi/2024-Cashman-PAC-learning-game/issues/5>, <https://github.com/journalovi/2024-Cashman-PAC-learning-game/issues/6>).

Addressed by #12

@dylancashman on
Dec 01, 2024 08:37:

- These suggestions are optional, but reviewers also mentioned potential enhancements. For example, R3 suggests visualizing true/false positives and negatives to enhance clarity (<https://github.com/journalovi/2024-Cashman-PAC-learning-game/issues/7>). R1 also suggests some enhancements to make the game more personalized and game-like (<https://github.com/journalovi/2024-Cashman-PAC-learning-game/issues/5>).

I ultimately did not make either of these enhancements.

@dylancashman on
Dec 01, 2024 09:37:

- R1 and R2 find the Introduction - "Why this is important" section to be a bit too abstract (<https://github.com/journalovi/2024-Cashman-PAC-learning-game/issues/5>, <https://github.com/journalovi/2024-Cashman-PAC-learning-game/issues/6>). Further, R2 finds the current positioning of the Gender Shade example to be confusing/misleading (<https://github.com/journalovi/2024-Cashman-PAC-learning-game/issues/6>).

Moved Gender Shades example to discussion of train test mismatch, and updated why this is important section to start with a simpler classification problem. See #13.

- R2 would like to see a clearer explanation of the visualization in the game within the article text (<https://github.com/journalovi/2024-Cashman-PAC-learning-game/issues/6>).

Addressed in [#11](#)

Similarly, R1 recommends labeling relevant variables within the visualization to clarify their purpose within the text (<https://github.com/journalovi/2024-Cashman-PAC-learning-game/issues/5>).

There were already labels of the strips T and T in the visualization, but there were relatively small, so I increased the size in [#13](#).

- R1 finds the "Assuming the Worst" title to be misleading, and recommends framing this section in terms of adversarial examples (<https://github.com/journalovi/2024-Cashman-PAC-learning-game/issues/5>).

I added two practical examples to this section about adversarial examples and non-i.i.d. examples in medicine in [#13](#).

- In terms of clarifying concepts, R3 asked whether toughest fit error may have a more general explanation in terms of sum of error rather than precise fractions of epsilon (<https://github.com/journalovi/2024-Cashman-PAC-learning-game/issues/7>).

I added additional explanation in [#13](#).

@dylancashman on
Dec 01, 2024 09:57:

- R1 points out that the text and the visuals may not always be aligned correctly (<https://github.com/journalovi/2024-Cashman-PAC-learning-game/issues/5>). Similarly, R2 finds that the game may update too early in response to article transitions (<https://github.com/journalovi/2024-Cashman-PAC-learning-game/issues/6>).

In [#13](#) I added more space between game transitions to make the updates less sudden. R1 asks for visual cues of which bullet point is currently being shown, but there is already an indication in the chips/buttons being lit up.

- R3 notes that some article styling breaks in the absence of an internet connection (<https://github.com/journalovi/2024-Cashman-PAC-learning-game/issues/7>). R3 also makes multiple (minor) suggestions for fixing typos and improving the overall styling of the article (<https://github.com/journalovi/2024-Cashman-PAC-learning-game/issues/7>).

For the internet connection issue, I am happy to provide a static build that is hosted on JOVI. I'm not sure how that happens though. The project is fully buildable and does not rely on any backend server. I added all minor changes suggested by R3.

@dylancashman on
Dec 01, 2024 11:01:

Some colors may be low contrast/difficult to perceive (especially red and green points in the game). When possible, avoiding reliance on colors is recommended.

Double encoded the red/green points with different symbols in [#14](#).

Some icons and buttons are missing alt text.

I believe that I have added alt text to the buttons in [#14](#):

```
<span class="MuiTouchKipple-root"></span>
</button>
<button class="MuiButtonBase-root MuiButton-root MuiButton-text tabindex="0" type="button" alt="Pause The Game">⋮</button>
  flex
</button> flex == $0
<button class="MuiButtonBase-root MuiButton-root MuiButton-text selectedButton tabindex="0" type="button" alt="Resume The Game">⋮</button>
  flex
<button class="MuiButtonBase-root MuiButton-root MuiButton-text tabindex="0" type="button" alt="Speed Up The Game">⋮</button>
  flex
<button class="MuiButtonBase-root MuiButton-root MuiButton-text tabindex="0" type="button" alt="Test Out My Model">⋮</button>
  flex
</div>
```

The article does not appear to be responsive to different window sizes or form factors (such as reading from a phone).

I don't think that I can make the article readable on a phone. Would it be possible to have the article be restricted to desktop format?

@dylancashman on
Dec 01, 2024 11:04:

@leibatt I believe I have responded to the revisions mentioned in this issue. There are two open questions that I am aware of:

1. Is it alright if the article stays non-readable on phones? It is semi-responsive to different browser sizes, but making it work on a phone would require a lot of rethinking.
2. I'm not sure how the hosting on JOVI works - should I provide a static build folder? It was mentioned by R3.

