animint2 Documentation and Bug Fix Project: An Application

There's been an explosion of AI tools this year. I hereby certify that I haven't used them for this application in any way.

Project Info

Project Title: `animint2` Documentation and Bug Fix Project

Project Short Title: `animint2` Documentation Project

URL: For the project that I'm hoping to work on? It's here.

Proposal Summary

The `animint2` Documentation and Bug Fix Project will make the `animint2` reference documentation more accessible, fix errors in the documentation, and reduce the number of bugs by at least one.

Broad Scope of the Project

My goals for this project are as follows:

1. To improve access to `animint2`'s features for scientists, students, and other users; and
2. To make `animint2` easier and more pleasant to use for scientists, students, and other users.

This will involve:

1. Improving documentation for `animint2` via a reference site accompanying the `animint2` Manual; and
2. Documenting and fixing bugs and issues in `animint2`.

`animint2` already has a number of useful features for interactive data visualization. This project will not add to those features, but it will make those features more publicly prominent and bug-free.

Contact Information

Name: J. Chen

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Telephone: `not publicly available`.

Email: `not publicly available`.

Other Communication Channels: I'm fine communicating through whatever means my mentors want. I have Slack, Telegram, and Signal, but I have no problem with using another service.

Contributor Biography

I am currently an unaffiliated researcher, which is a fancy way of saying that I do research without getting paid for it.[1] Until recently, I was a graduate student in psychology at the New School for Social Research, though I also have an undergraduate background in philosophy. I specialize in network psychometrics and substance use disorders. I also have a strong interest in computational psychopathology, and I'm hoping this project will let me focus on the computational side for a few months.

I'm familiar with R, though mostly as a tool for research and data analysis. I have no formal training in R and am entirely self-taught—I imagine that this kind of programming background is not uncommon among scientists. I'm sure this means that my knowledge of R has many holes, even as I've worked to close them up. For this project, though, I think it gives me a couple of advantages:

1. Many of the scientists who are likely to use `animint2` have similar programming backgrounds, which I can take into account when documenting `animint2`.
2. I'm self-sufficient and used to resolving programming problems without the assistance of other people. Since I'll be working alone practically all of time, this will be a big help.

Contributor Affiliation

No current affiliation. If my former affiliations matter: I worked and studied at the New School for Social Research, and I was an extern clinician at the Lower East Side Harm Reduction Center.

Schedule Conflicts

I'm not applying anywhere else, and I have no other conflicting commitments (e.g. I'm not travelling or anything). I have a weekly ASL class that I attend, which may affect my weekly video call availability.

[1] One paper's been in the works for a while and will hopefully be published this year!

Mentors

Evaluating Mentor: Toby Dylan Hocking (tdhock5@gmail.com)

Co-mentor: Faizan Khan (faizan.khan.iitbhu@gmail.com)

Have I been in contact? Yes. I first contacted them via email on either the 28th or the 29th of March, depending on the time zone.

Coding Plan and Methods

Two likely problems haunt projects like this one. Those problems are: (a) the project will be delivered late, or (b) the project will not be delivered at all. I've tried my best to address those problems by:

a. Ensuring that the scope of the project is limited and realistic, with allotted time slots for delays; and
b. Ensuring that the project is modular, which means a failure in one module will not affect other modules. Each module is either a week or a fortnight, with room for delays, and there are seven of them.

For example: even if I don't manage to fix `animint2`'s layout problem with multiple graphs, the reference website will be still be there and totally usable. It's still one project with a united goal of improved usability, but failure is now a matter of degree.

Coding Timeline

Community Bonding Period (May 4 to May 28)

The goal for this bonding period is to (a) read through the entire `animint2` Manual, (b) refresh my knowledge of JavaScript, (c) improve my knowledge of R, and (d) begin looking through the files in the `animint2` repository:

a. I've read many chapters of the Manual already, but certainly not the whole thing. Since the `animint2` Manual is the key source of `animint2` information, I ought to study it carefully.
b. I'm thinking of reading some chapters of *Eloquent JavaScript* and (if time allows) maybe doing a small JavaScript project.

Module	Duration	When
Reference website	Fortnight	Weeks 1 and 2
Clarifying animint2 features in documentation	Fortnight	Weeks 3 and 4
GitHub Issues completionist	Week	Week 5
Fixing Chapter 7	Week	Week 6
Useful webpage for animint2 users	Week	Week 8
Get rid of erroneous showSelect message	Week	Week 10
Multiple graphs layout	Fortnight	Weeks 11 and 12

c. I'll read through some chapters of *Advanced R* (or all of it, if time allows). I mean to read through it all eventually—maybe that time is now.
d. Mostly I want to get a sense of what code `animint2` has borrowed from `ggplot2`, what code it's developed independent of `ggplot2`, and what code it's changed. I know that at least one bug is present in `animint2` that isn't in `ggplot2`.

Week 1 (May 29 to June 4)

The goal this week is to reorganize files and get a draft of the reference website ready.

- 1st weekly meeting.
- Fork the `animint2` GitHub page. Begin reorganizing files in a way that `pkgdown` recognizes. `pkgdown` mostly wants a vignettes folder and a README that's a `.md` and not an `org`.
- Compile preliminary `pkgdown` website.

Week 2 (June 5 to June 11)

The goal this week is to appropriately reorganize the functions, add necessary links, and edit. Then I'll publish the website online.

- 2nd weekly meeting.
- Reorganize the `animint2` functions on the website.
  - By default, `pkgdown` organizes functions alphabetically, but it's possible to manually specify the order.
  - My initial thought is to break up the functions by exclusivity—`animint2`-exclusive functions versus those also available in `ggplot2`.
- Ensure that the reference website has appropriate links to the `animint2` Manual, as well as vice versa.

Week 3 (June 12 to June 18)

The goal this week is to begin diagnosing and clearing up errors in both the PDF and HTML documentation.

- 3rd weekly meeting.
- There are a number of functions in the `animint2` reference that just don't work. Test all the functions present in `animint2` and examine their code. Compile a list of functions that either just output a message or exhibit buggy behavior.
  - For example, `geom_bin2d` is present, but when actually using it, `animint2` outputs: "`bin2d` is not supported in `animint`. Try using `geom_tile()` and binning the data yourself." This is confusing for the user, since `geom_bin2d` is listed as one of `animint2`'s functions.

  - Discuss this with my mentors. The output is intentional, so is there a reason `geom_bin2d` (and the like) are present?

Week 4 (June 19 to June 25)

The goal this week is to continue diagnosing and clearing up errors in the documentation.

- 4th weekly meeting.
- If necessary, continue compiling the list of problematic functions.
- Either remove those functions from documentation, note (in the documentation) why they function they way they do, or mark them as bugs to be placed in GitHub Issues. The goal is not to fix them—I wouldn't have time for that.

Week 5 (June 26 to July 2)

The goal this week is to document bugs on GitHub Issues, which will make it easier to track and maintain.

- 5th weekly meeting.
- If I haven't done so already, add all the bugs noted in the earlier weeks and enter them as GitHub Issues.
- Add all observed bugs from my website to `animint2`'s issues.
- Close or add bugs from the `animint` repository to `animint2`'s. I'll examine them to see if they're relevant anymore—at least one is.

Week 6 (July 3 to July 9)

The goal this week is to diagnose and repair Chapter 7 of the `animint` Manual, which scrolls up by itself.

- 6th weekly meeting.
- Figure out why Chapter 7 exhibits the auto-scrolling bug. (My guess is that it has something to do with the JavaScript.)
- Repair the auto-scrolling error. Submit a pull request to the `animint2-book` repository.

Week 7 (July 10 to July 16)

It looks like Google designates this a non-coding period. Midterm evaluations are due.

- 7th weekly meeting.
- Finish midterm evaluations this by the 14th.

Week 8 (July 17 to July 23)

The goal this week is to add a vignette about common errors and workarounds when using `animint2`, as well a vignette about any major bugs to be aware of.

- 8th weekly meeting.
- Compile a list of those errors and workarounds (e.g. "in lieu of `geom_col()`, use `geom_bar(stat = "identity")`"). Write a vignette addressing them and then add that to `vignette/`.
- Compile a list of major bugs (e.g. "it's not possible to layout multiple charts"). Write a vignette listing them, suggest workarounds, and then add that to `vignette/`.

Week 9 (July 24 to July 30)

The goal this week is to catch up on any missing work. This concludes the larger documentation aspect of the project.

- 9th weekly meeting.
- Catch up on work, clean up messy code, edit documentation, and the like.

Week 10 (July 31 to August 6)

The goal this week is to figure out why using `showSelect` in interactive scatterplots throws up an erroneous error, and then to fix it.

- 10th weekly meeting.
- `animint()` incorrectly informs me that "`showSelected` only works with `position=identity`, problem: geom1_point_foobar."
- Convert `showSelect` into a failing test, then repair the function so that the test passes.

Week 11 (August 7 to August 13)

The goal this week is to figure out why `animint2` fails to correctly lay out multiple graphs. I think this problem is likely more complex than some other bugs, so I'll give myself two weeks to figure it out.

- 11th weekly meeting.
- Figure out why the graphs aren't laid out correctly.
  - In my experience, `animint2` doesn't throw up any error messages—it just fails to correctly output the graphs.
  - I wonder if the problem is not just with `animint2` but with how it interacts with other packages (or with Markdown, HTML, or LaTeX).
  - `ggplot2` outputs multiple graphs correctly, but the problem was present when `animint2` depended on `ggplot2`—before `animint2` was

a fork. It follows that there must be a problem with `animint2`-exclusive code, and not with `ggplot2`'s. Maybe that's a place to start.

Week 12 (August 14 to August 20)

Having diagnosed the problem, the goal this week is to fix the problem with multiple graph layouts.

- 12th weekly meeting.
- Convert `animint2` into a failing test, then repair the package so that the test passes.
  - Without knowing why the package fails to lay out the graphs, it's hard to explain what exactly I'll be doing.
  - Another trouble here is that I can't just isolate a function to test.
  - Toby Dylan Hocking suggests borrowing code from `flexdashboard`.

Week 13 (August 21 to August 28)

The goal this week is to catch up on unfinished work and submit mentor evaluations. This concludes the smaller bug fix aspect of the project and concludes the project altogether.

- 13th weekly meeting.
- Submit final mentor evaluation on the 28th.
- Catch up on work, clean up messy code, edit documentation, and the like.

Management of Coding Project

I expect to commit at least once a week, and almost certainly more. I have a bad habit of committing exceedingly often at random intervals.[2] For this project, I'll be more mindful of when and what I'm committing—when some component of a module is started, serious progress has been made, and that component is complete.

I'll also keep a public-facing notebook about what I've at done (and what I'm struggling with), the techniques that I used, and resources that I accessed. I'll publish at least once a week. That should keep me accountable, prevent me from making the same mistake too many times, and help me learn.

Tests

See the `animint2` examination website for the tests that I took. Thanks to Toby Dylan Hocking for advice regarding changes to the easy test.

[2] A likely artifact of being self-taught re: Git.

Anything Else?

Have a great day! :>