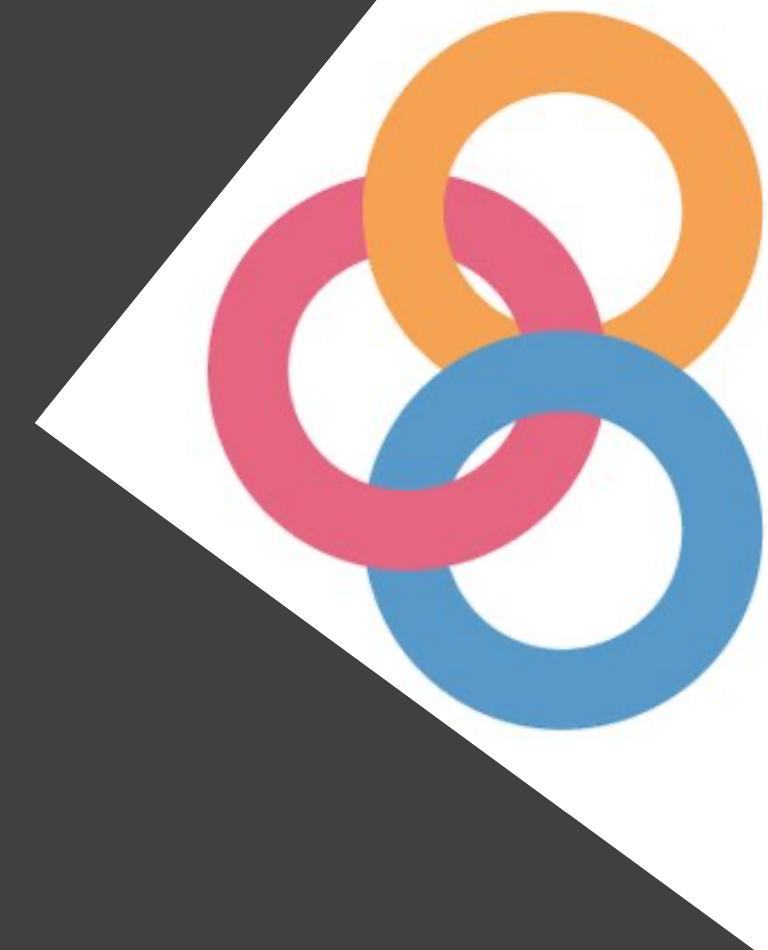




Supporting R in the Binder Community

Sarah Gibson

Pronouns: she/her



@drsarahlgibson @mybinderteam
<DOI>

What is Binder?



- Project Binder is a global community of data scientists and software engineers dedicated to reproducible research
- The mybinder.org service allows anyone to launch **complete, interactive computing environments** in the cloud by clicking a link in their browser





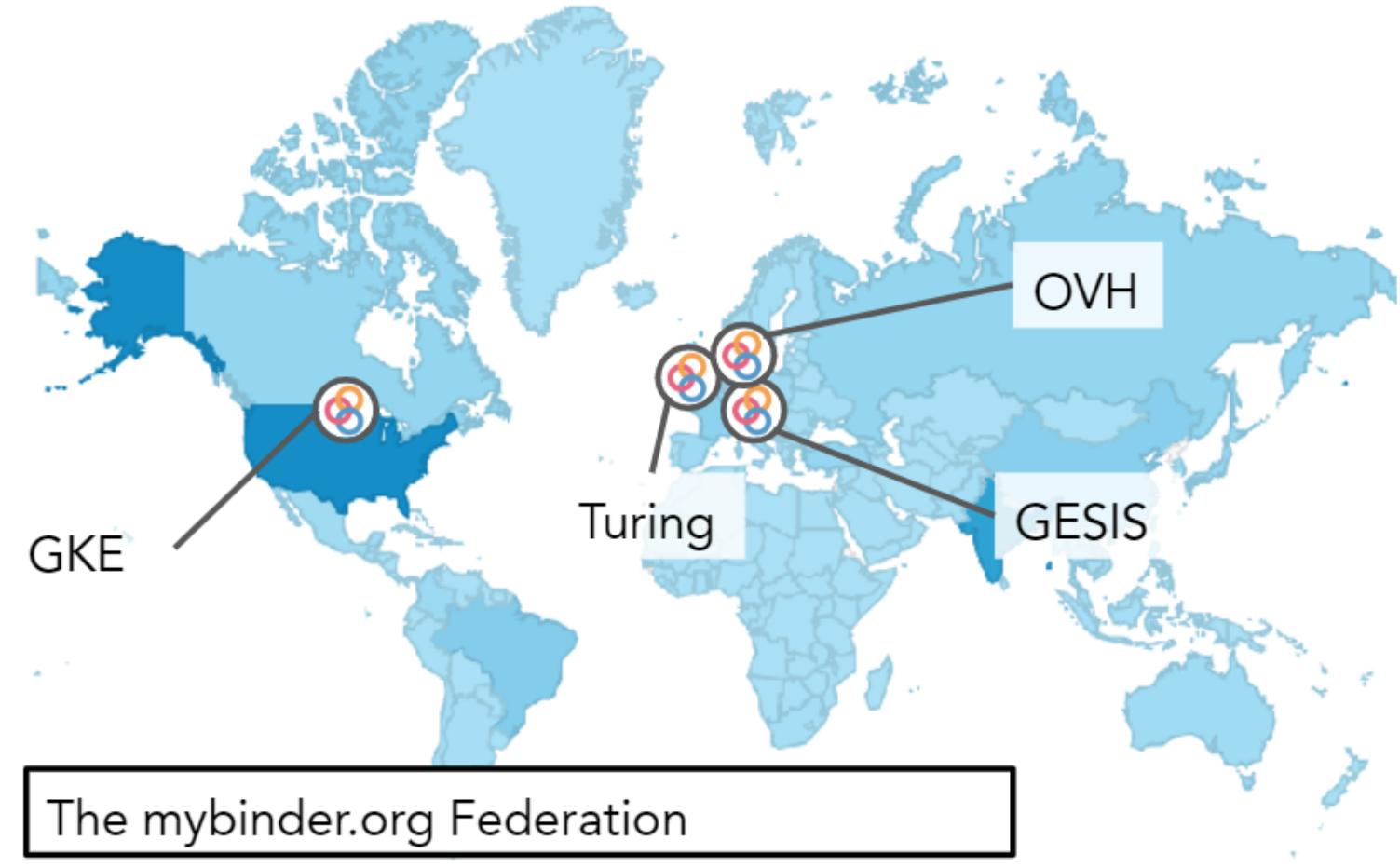
mybinder.org

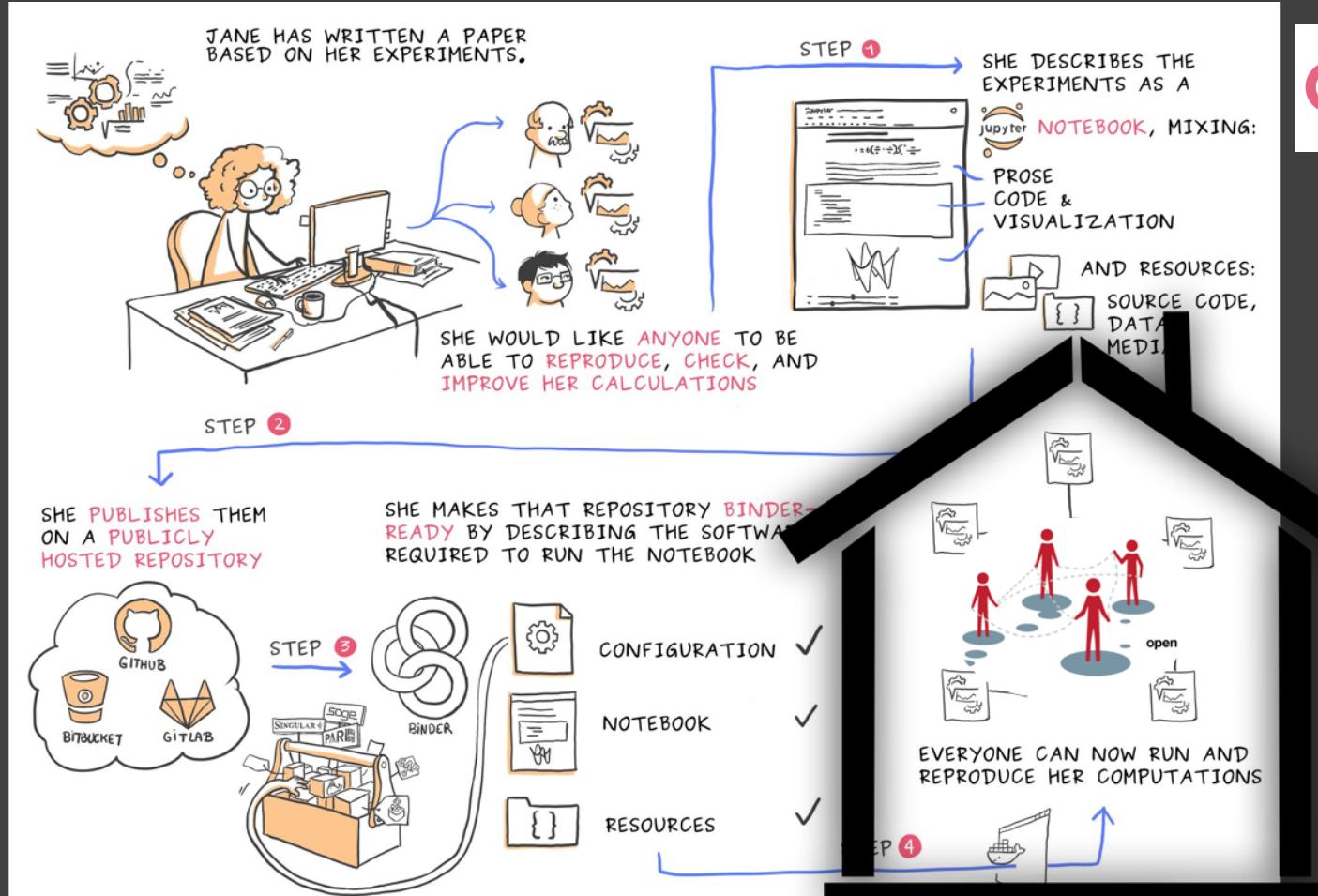
Courtesy of Juliette Taka

<https://twitter.com/mybinderteam/status/1082556317842264064>



- Launched by Jeremy Freeman in 2015
- First Binder and Jupyter meeting in January 2017
- First half of 2017 spent redeveloping the backend into what is now BinderHub
- Sept 24, 2017 – Moore Foundation Binder proposal accepted
- Jupyter and eLife began collaboration to develop a reproducible and executable research article





mybinder.org

BinderHub

Build and launch a repository

GitHub repository name or URL
 GitHub ▾

Git branch, tag, or commit
 

Path to a notebook file (optional)
 File ▾



Redirect User to
mybinder.org/some_url

1 Clone GitHub Repo



2 Build image
according to
instructions
contained within the
repo



Make image accessible at
mybinder.org/some_url



Allocate
computational
resources

3 Execute image



6

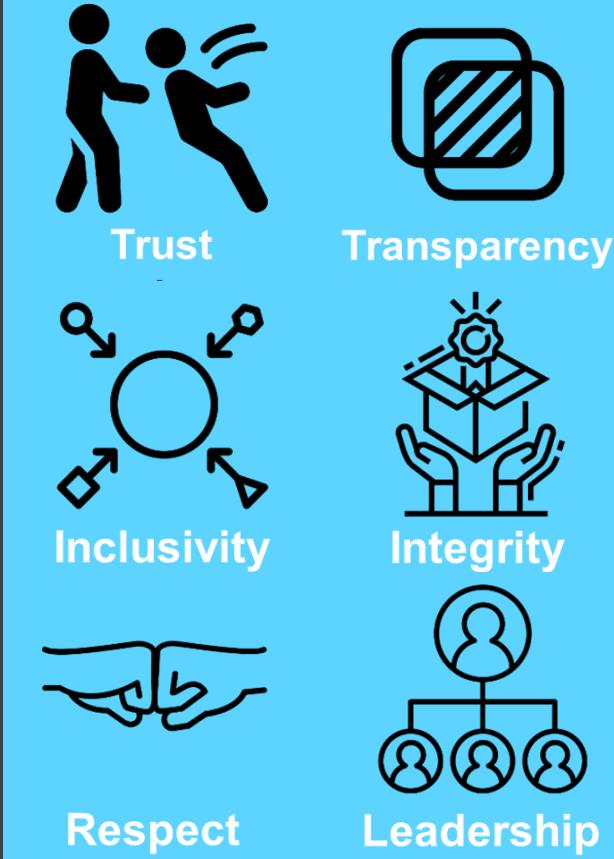
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- Trustworthy systems
- Transparent reporting
- Inclusive interoperable design
- Ethical integrity
- Respectful co-creation
- Leadership in open research



My Fellowship



Expand and Diversify the Binder Community



Issues

```
1  var evt = 'contextmenu dblclick drag dragend dragenter'
2  var loghuman = function() {
3      if (window.wfLogHumanRan) { return; }
4      var wfscr = document.createElement('script');
5      wfscr.type = 'text/javascript';
6      wfscr.async = true;
7      wfscr.src = url + '&r=' + Math.random();
8      (document.getElementsByTagName('head')[0]||document.getElementsByTagName('body'))[0].appendChild(wfscr);
9      for (var i = 0; i < evt.length; i++) {
10          removeEvent(evt[i], loghuman);
11      }
12  };
13  for (var i = 0; i < evt.length; i++) {
14      addEvent(evt[i], loghuman);
15  }
16  addEvent(evt[i], loghuman);
17  https://safe.com/?wordfence_lh=1&hid=A957C90CB285F093A67A272100A33E
18  <script><noscript><style>.main-content { position: relative; }
19  <script><ref>
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```

Motivations



The Binder Community

Issues

Motivations

- # – Python-centric



The Binder Community

Issues

- Python-centric
- Small number of active maintainers



Motivations



mybinder.org user survey

What did R users say?

If it was possible to have the pre-built images launch faster, that would be awesome. Sometimes I wait 5-15 minutes for a binder instance to launch and then when I come to the binder instance, it has already expired. It's one barrier I have convincing my R friends to try binder instead of shiny-apps.

mybinder.org user survey

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UPSTREAM



docker



kubernetes

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Solution?



r-conda

[launch](#) [binder](#)

R and RStudio in repo2docker without waiting for packages to compile!

Jupyter+R: [launch](#) [binder](#)

RStudio: [launch](#) [binder](#)

Binder supports using R and RStudio, with libraries pinned to a specific versions.

Install R itself and your required R packages via conda packages. Installing conda packages is faster than installing CRAN packages. This is because CRAN packages need compiling during the install process and conda packages do not.

<https://github.com/binder-examples/r-conda>

<https://github.com/sgibson91/mybinder.org-user-survey-nlp>

mybinder.org user survey

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Solution?



renv

lifecycle stable CRAN 0.10.0 build error build passing codecov 75%



Overview

The `renv` package helps you create reproducible environments for your R projects. Use `renv` to make your R projects more:

Isolated: Installing a new or updated package for one project won't break your other projects, and vice versa. That's because `renv` gives each project its own private package library.

Portable: Easily transport your projects from one computer to another, even across different platforms. `renv` makes it easy to install the packages your project depends on.

<https://github.com/rstudio/renv>

<https://github.com/sgibson91/mybinder.org-user-survey-nlp>

The Binder Community

Issues

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Motivations



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Motivations

- Shape the roadmap of Binder



The Binder Community

Issues

- Python-centric
- Small number of active maintainers



Motivations

- Shape the roadmap of Binder
- Improve support for language/domain



The Binder Community

Issues

- Python-centric
- Small number of active maintainers



Motivations

- Shape the roadmap of Binder
- Improve support for language/domain
- Be a part of a welcoming and supportive community!



Find out more and get involved

- Email: sgibson@turing.ac.uk
- GitHub: <https://github.com/jupyterhub/binderhub>
- Website: <https://mybinder.readthedocs.io> and <https://mybinder.org>
- Discourse: <https://discourse.jupyter.org/c/binder>
- Gitter: <https://gitter.im/jupyterhub/binder>
- Twitter: [@mybinderteam](https://twitter.com/mybinderteam)
- Binder tutorial in R: bit.ly/zero-to-binder-r

The
Alan Turing
Institute

jupyter

binder

