

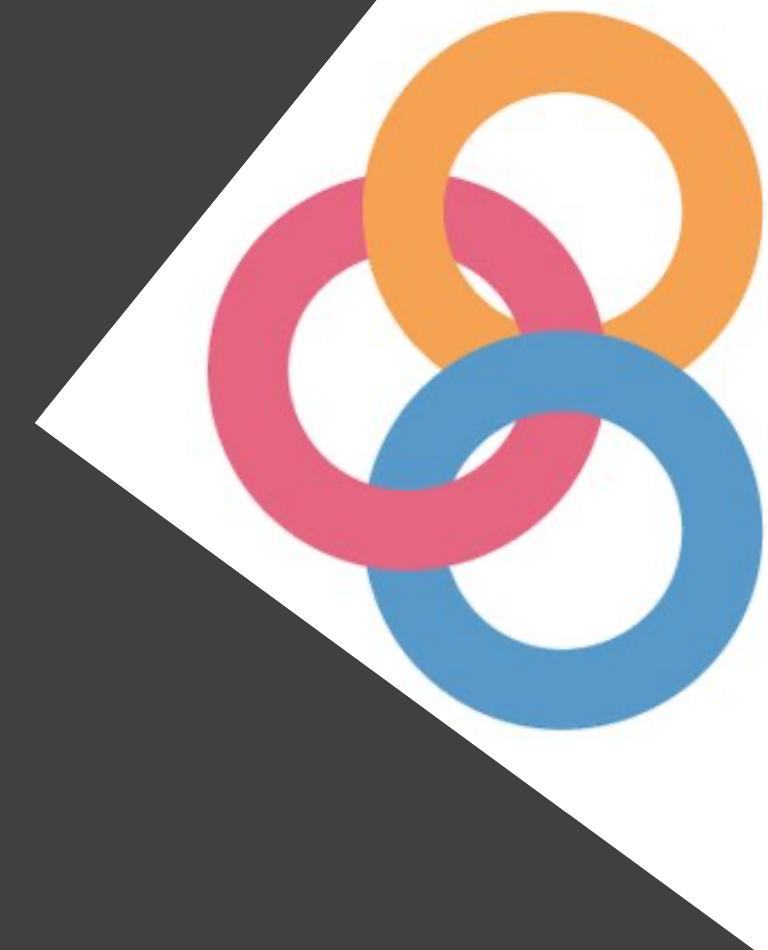


---

# Supporting R in the Binder Community

Sarah Gibson  
Pronouns: she/her

<https://doi.org/10.5281/zenodo.3895699>  
@drsarahlgibson @mybinderteam #eRum2020



# --- 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

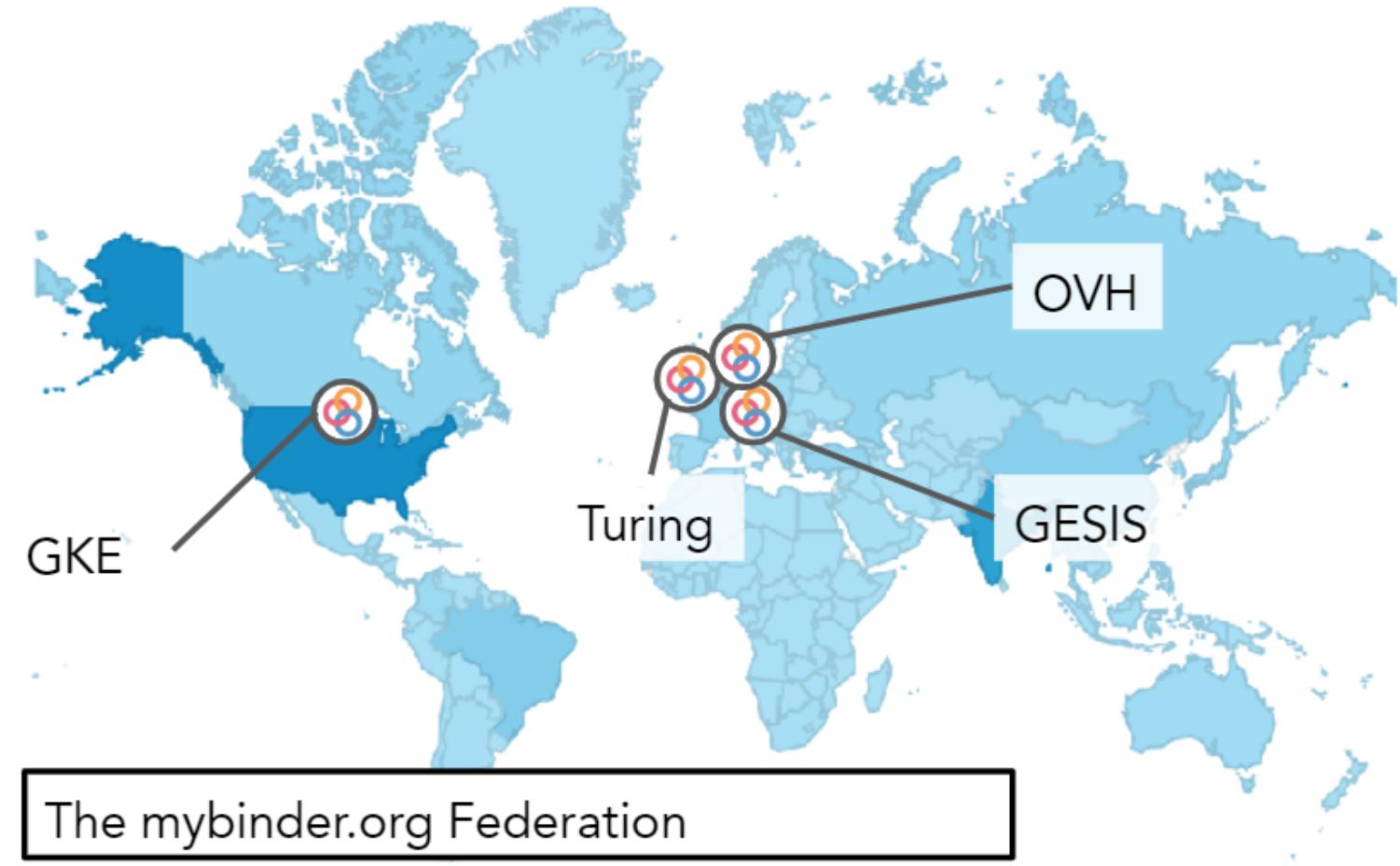
Courtesy of Juliette Taka

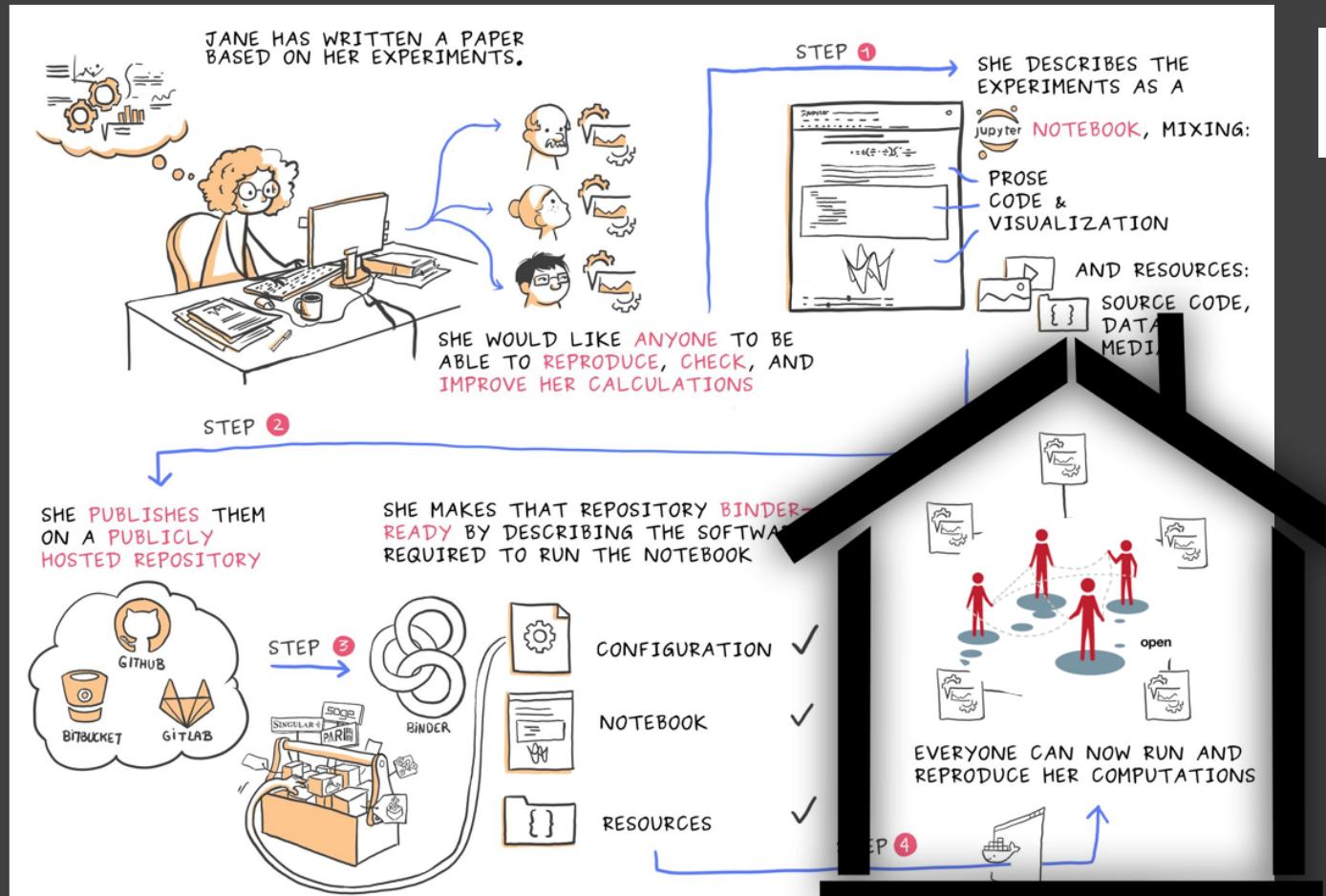
<https://twitter.com/mybinderteam/status/1082556317842264064>

<https://doi.org/10.5281/zenodo.3895699>  
@drSarahGibson @mybinderteam #eRum2020



- 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





mybinder.org

<https://binderhub.readthedocs.io>

<https://binderhub.readthedocs.io/en/latest/federation/federation.html#federation-joining>

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# 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



6

Allocate  
computational  
resources

4

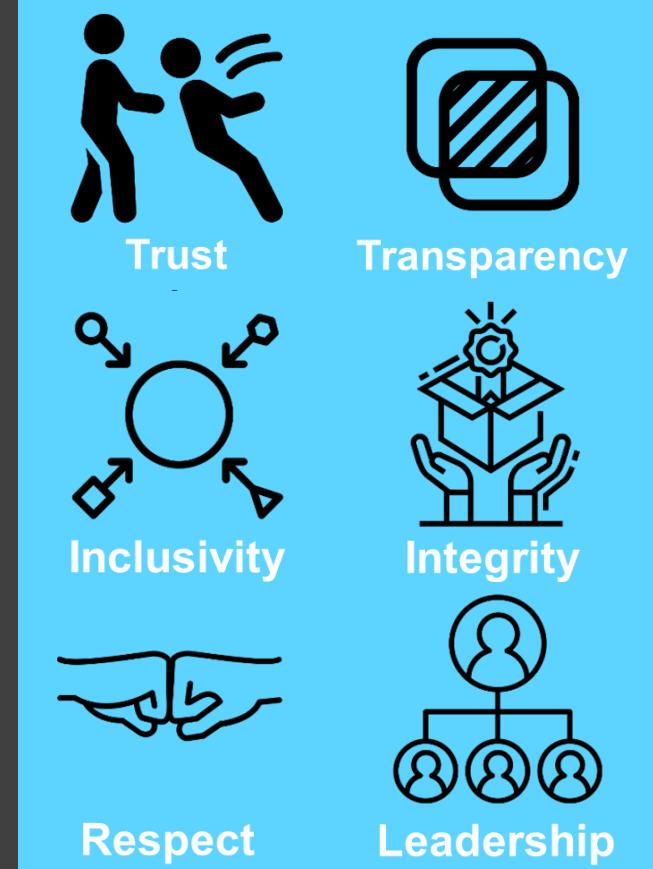
5

3

Execute image <https://doi.org/10.5281/zenodo.3895699>  
@drssarahlgibson @mybinderteam #eRum2020



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



# My Fellowship



<https://software.ac.uk/programmes-and-events/fellowship-programme>

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# Expand and Diversify the Binder Community



# Issues

```
1  var evts = '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 < evts.length; i++) {
10          removeEvent(evts[i], loghuman);
11      }
12  };
13  for (var i = 0; i < evts.length; i++) {
14      addEvent(evts[i], loghuman);
15  }
16  https://safe.com/?wordfence_lh=1&hid=A957C90CB285F093A67A272100A33E
17  <script><noscript><style>.main-content { position: relative; }
18  .main-content::before { content: 'ref'; position: absolute; top: 0; left: 0; font-size: 10px; font-weight: bold; color: #ccc; background-color: #fff; padding: 2px 5px; border-radius: 5px; z-index: 1; }
19  </style></noscript><script>new Date()
20  </script><script>ParentWindow
21  </script>
```

# 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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### rocker

#### Overview

This repository contains Dockerfiles for different Docker containers of interest to R users.

#### Getting Started

To get started right away, ensure you have [Docker installed](#) and start a container with `docker rocker/r-base` (see [here](#) for the `docker run` command options). In this case we are starting a container (the base package to build from) in an interactive mode, see below for details of the currently available. To get started on the `rstudio` container or its derivative containers (e.g. `ropensci`) you need to open a port, see the [instructions in the wiki](#). The [wiki](#) also contains information on the project, including how to extend these images and contribute to development.

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

### Hole punch

 R-CMD-check failing

 coverage 75%  lifecycle maturing  CRAN not published

#### What this package does

holepunch will read the contents of your R project on GitHub, create a [DESCRIPTION](#) file, write a Dockerfile, add a badge to your README, and build a Docker image. The reader can click the badge and within minutes, be dropped into a free, live, Python script and notebook and see how everything works.

[@drSarahLGibson @mybinderteam #eRum2020](https://doi.org/10.5281/zenodo.3895699)

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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>

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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>

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# The Binder Community

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## Motivations



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## Motivations

- Shape the roadmap of Binder



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## 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](mailto: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](https://bit.ly/zero-to-binder-r)

The  
Alan Turing  
Institute

jupyter

binder

