

# Lecture 3

## Git and GitHub

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Ivan Rudik

AEM 7130



# Software and stuff

Necessary things to do:

- Install [Git](#)
- Create an account on [GitHub](#)
- Install [GitHub Desktop](#) if you want a GUI for Git
- Accept invite to the AEM 7130 classroom repository on GitHub

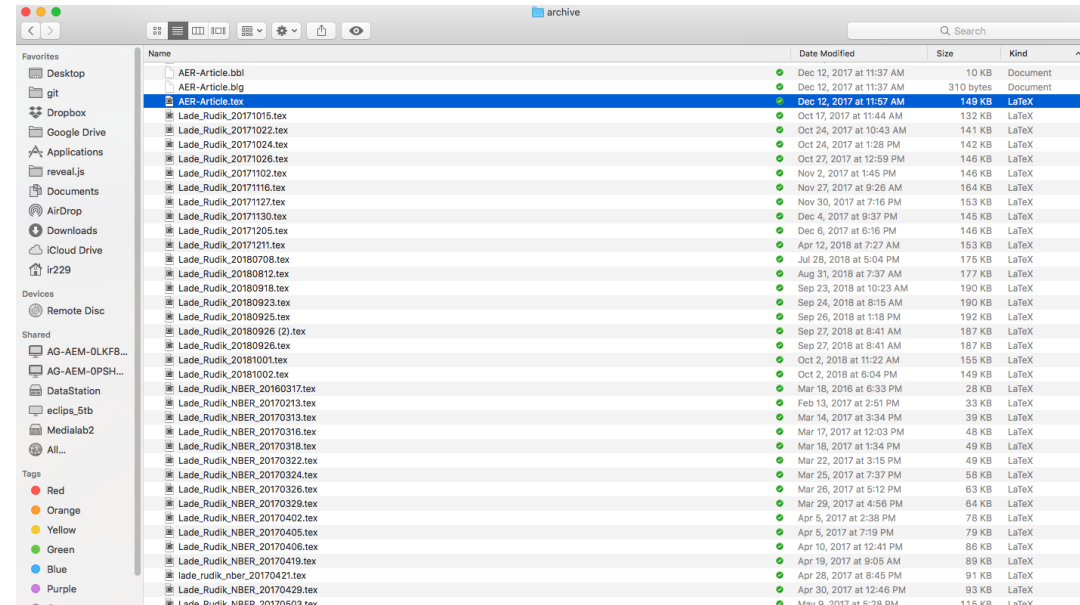
# Quick note

A decent chunk of these slides is inspired by [Grant McDermott's data science course](#)

If you're interested in more data science-y (similar to Ariel's class) and less numerical/structural material, check his material out

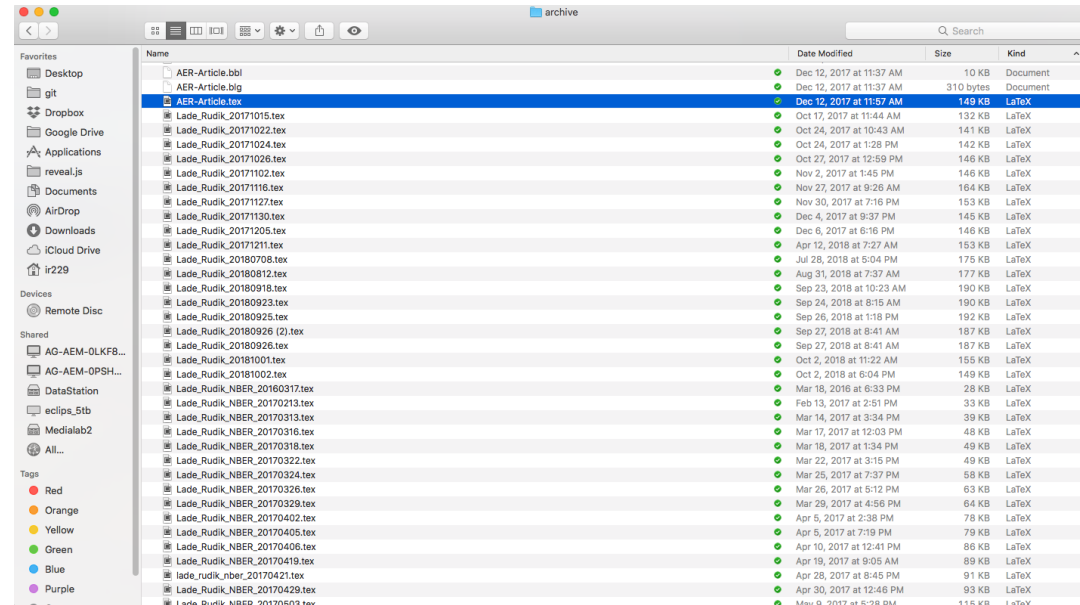
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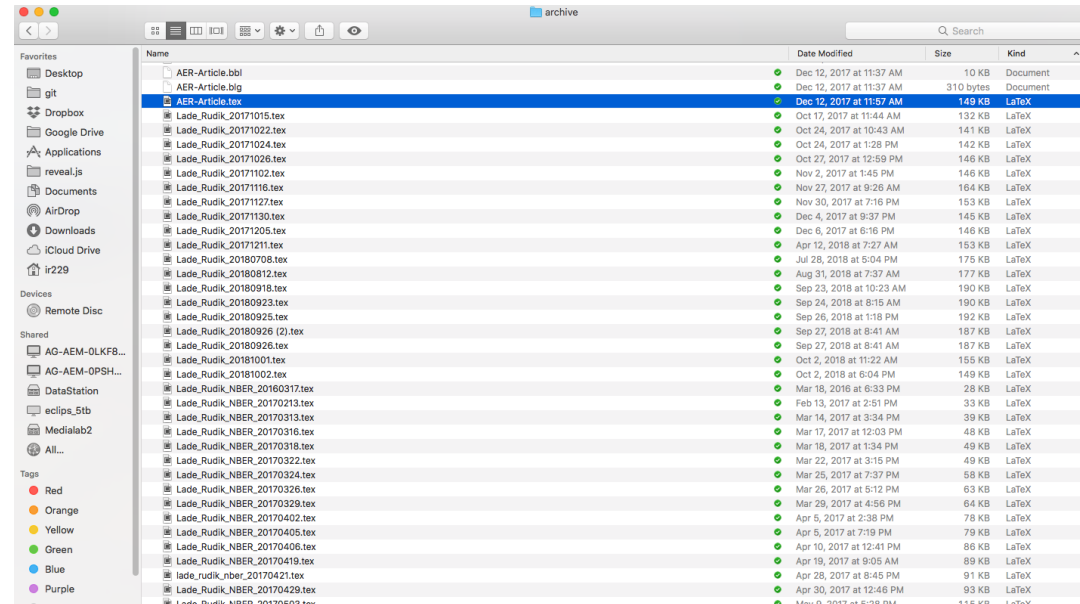


When did you make changes? Who made them?

How do you undo only **some** changes from one update to the next?

# Why bother with this new fangled Git stuff?

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When did you make changes? Who made them?

How do you undo only **some** changes from one update to the next?

If you've ever had a disaster managing code changes (you will), Git can help

# Git is the smart way to handle code

## What is git?

Git is a distributed version control system for tracking changes in source code during software development. It is designed for coordinating work among programmers, but it can be used to track changes in any set of files. Its goals include speed, data integrity, and support for distributed, non-linear workflows.



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- Easy ways to test out experimental changes (e.g. new specifications, additional model states) and not have them mess with your main code

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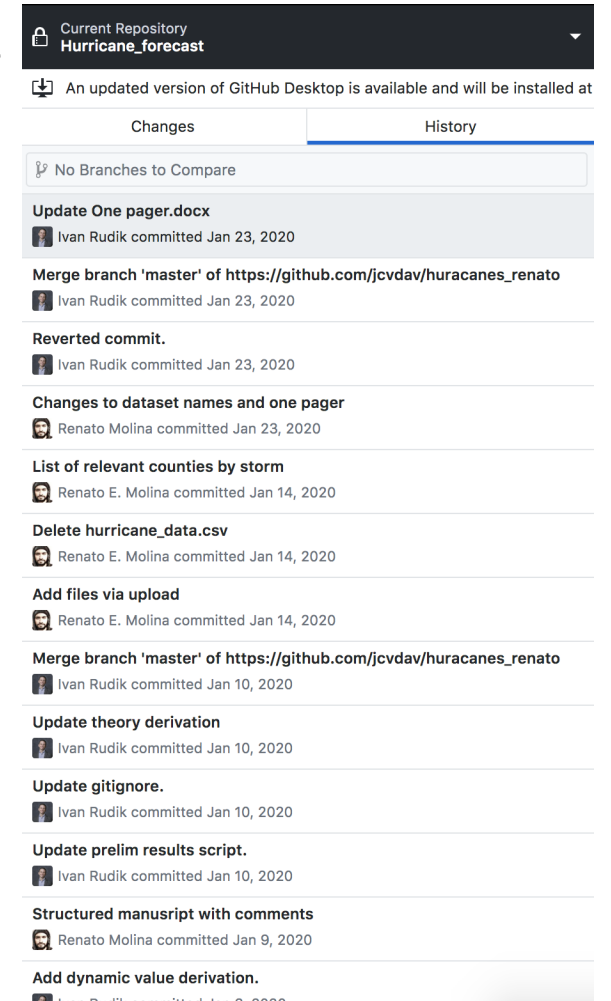
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Git combines a bunch of very useful features:

- Remote storage of code on a host like GitHub/GitLab/Bitbucket/etc, **just like Dropbox**
- Tracking of changes to files in a very clean way
- Easy ways to test out experimental changes (e.g. new specifications, additional model states) and not have them mess with your main code
- Built for versioning **code** like R, Julia, LaTeX, etc

# Git histories in GitHub Desktop

Some apps can give you a pretty visual of the history of changes to your code (shell can too, but not as nice)



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Git  $\neq$  GitHub



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- Allows for people to suggest code changes to existing code
- It's the main location for non-base Julia packages (and **tons** of other stuff) to be stored and developed
- It has services that I used to set up this class, etc

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GitHub stores the project on the cloud, allows for task management, creation of groups, etc



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Your directories will be super clean

It is **MUCH** easier to collaborate on projects

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My code for **everything** I've ever published is on **my GitHub** (I'll look real shady if I don't post code in the future)

Ideally yours will be too

# Git basics

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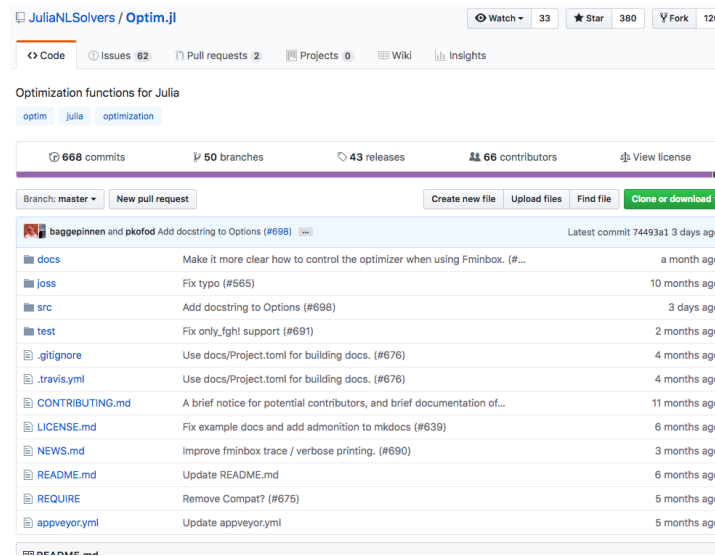
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# Git basics

Everything on Git is stored in something called a **repository** or *repo* for short

This is the directory for a project

- **Local:** a directory with a `.git` subdirectory that stores the history of changes to the repository
- **Remote:** a website, e.g. see the GitHub repo for the **Optim** package in Julia



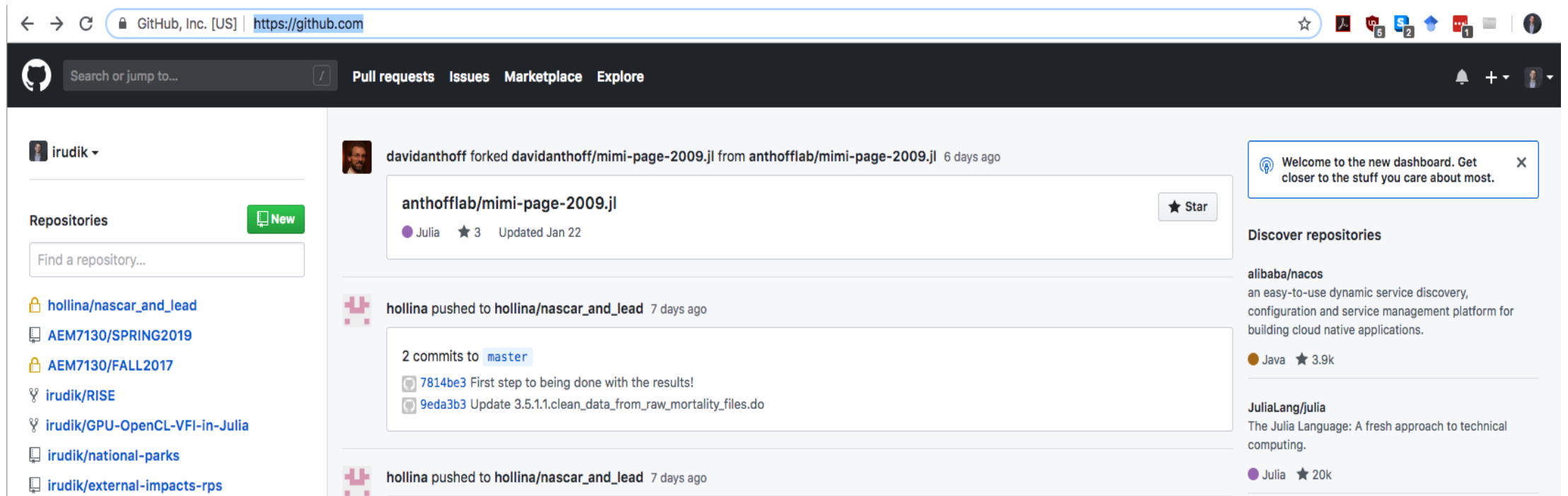
# Creating a new repo on GitHub

Let's create a new repo

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## Let's create a new repo

This is pretty easy from the GitHub website: just click on that green **new** button from the launch page

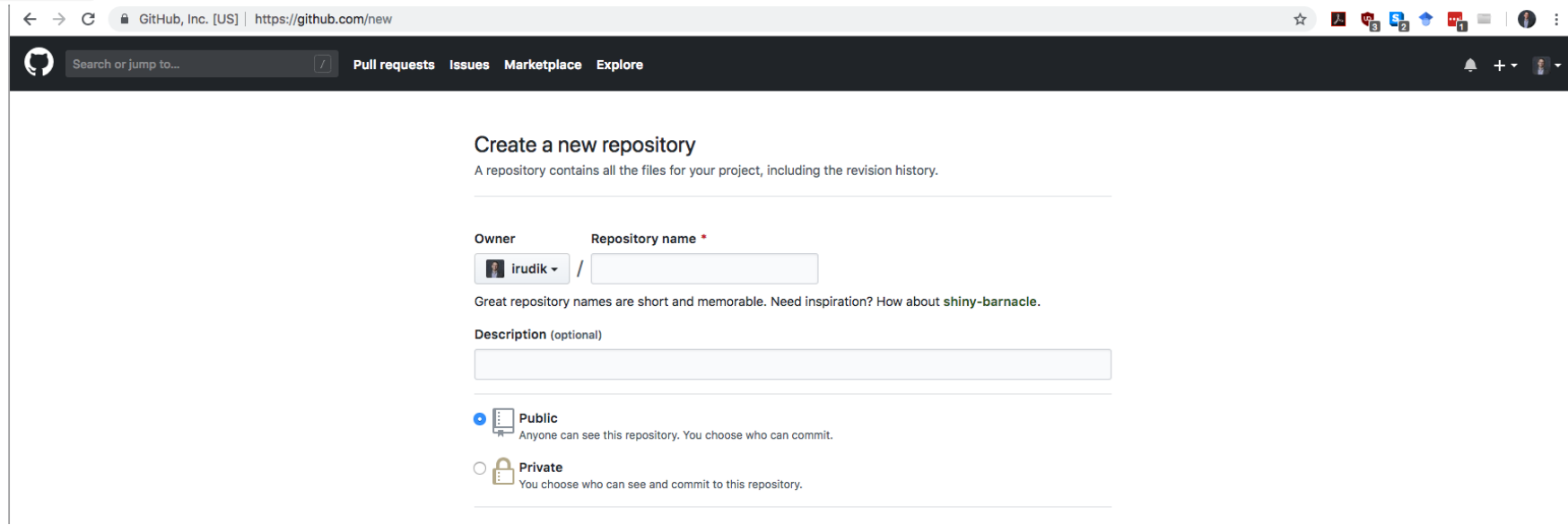


The screenshot shows the GitHub homepage. At the top, the browser address bar displays 'GitHub, Inc. [US] | https://github.com'. Below the navigation bar, the left sidebar features the user profile 'irudik' and a 'Repositories' section with a green 'New' button and a search bar. A list of repositories is shown, including 'hollina/nascar\_and\_lead', 'AEM7130/SPRING2019', 'AEM7130/FALL2019', 'irudik/RISE', 'irudik/GPU-OpenCL-VFI-in-Julia', 'irudik/national-parks', and 'irudik/external-impacts-rps'. The main content area displays a forked repository 'anthofflab/mimi-page-2009.jl' by 'davidanthoff', updated on Jan 22. Below this, a commit history for 'hollina/nascar\_and\_lead' is shown, with two commits to the 'master' branch. The right sidebar includes a welcome message, 'Discover repositories' section with 'alibaba/nacos' and 'JuliaLang/julia' listed, and a 'Star' button for the main repository.

# Creating a new repo on GitHub

Next steps:

1. Choose a name
2. Choose a description
3. Choose whether the repo is public or private
4. Choose whether you want to add a `README.md` (yes), or a `.gitignore` or a `LICENSE.md` file (more next slide)

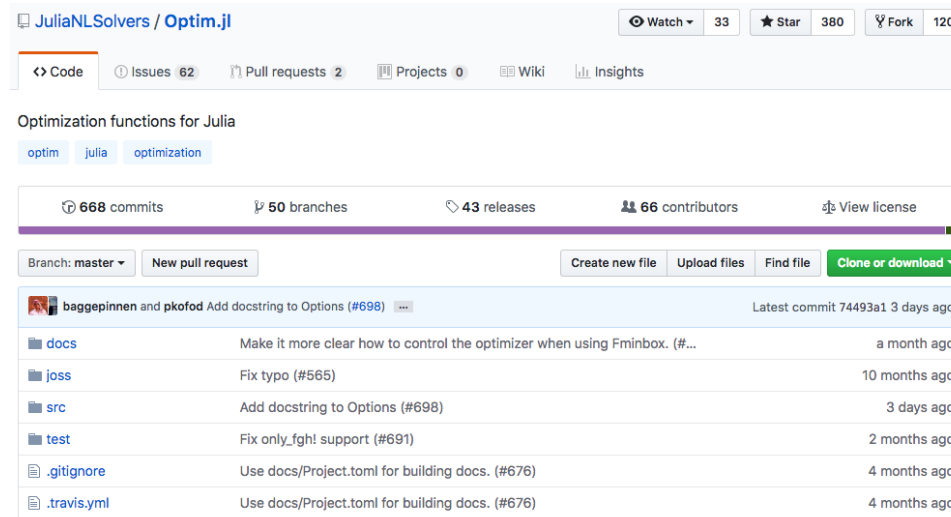


The screenshot shows the GitHub 'Create a new repository' page. The browser address bar displays 'GitHub, Inc. [US] | https://github.com/new'. The page header includes the GitHub logo, a search bar, and navigation links for 'Pull requests', 'Issues', 'Marketplace', and 'Explore'. The main content area is titled 'Create a new repository' with a subtitle 'A repository contains all the files for your project, including the revision history.' Below this, there are two input fields: 'Owner' (with a dropdown menu showing 'irudik') and 'Repository name' (with a red asterisk indicating it is required). A hint text suggests 'Great repository names are short and memorable. Need inspiration? How about shiny-barnacle.' Below these fields is a 'Description (optional)' text area. At the bottom, there are two radio button options: 'Public' (selected) and 'Private'. The 'Public' option is described as 'Anyone can see this repository. You choose who can commit.' The 'Private' option is described as 'You choose who can see and commit to this repository.'

# Git basics

Repos come with some common files in them

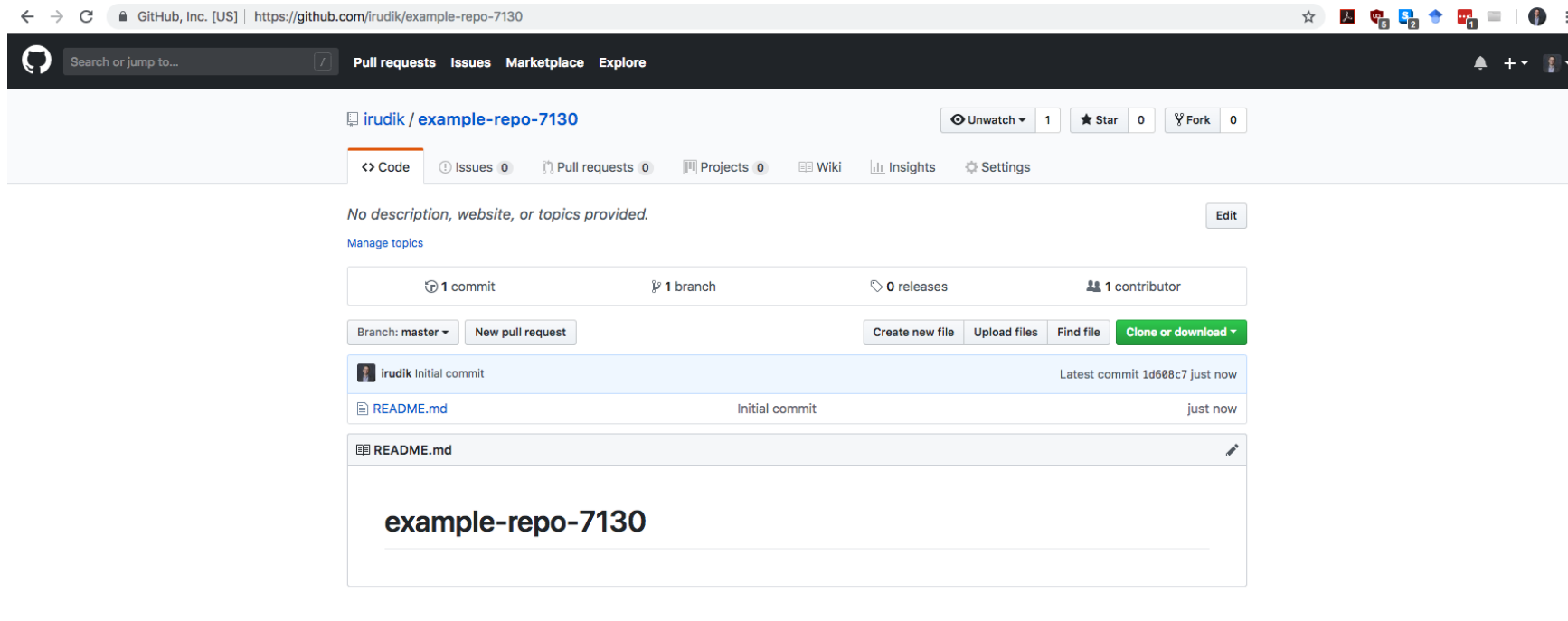
- `.gitignore`: lists files/directories/extensions that Git shouldn't track (raw data, restricted data, those weird LaTeX files); this is usually a good idea
- `README.md`: a Markdown file that is basically the welcome content on repo's GitHub website, you should generally initialize a repo with one of these
- `LICENSE.md`: describes the license agreement for the repository





# Creating a new repo on GitHub

You can find the repo at <https://github.com/irudik/example-repo-7130>



# How do I get a repo on GitHub onto on my computer?

## Clone

To get the repository on your local machine you need to **clone** the repo, you can do this in a few ways from the repo site

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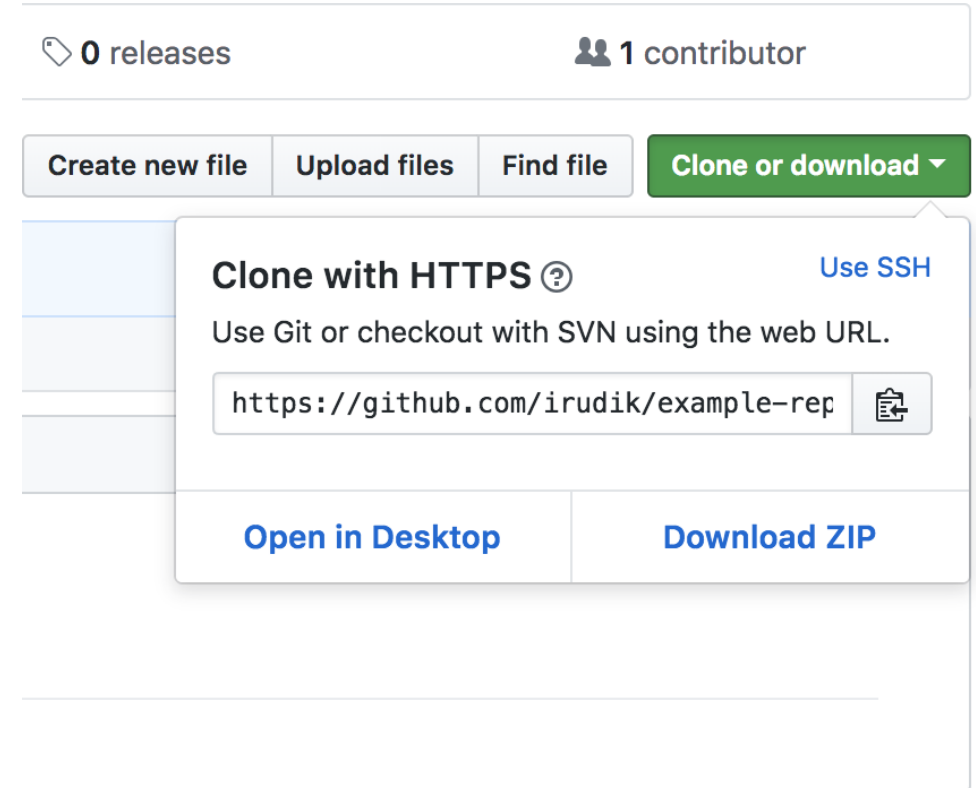
## Clone

To get the repository on your local machine you need to **clone** the repo, you can do this in a few ways from the repo site

Key thing: this will **link** your local repository to the remote, you'll be able to update your local when the remote is changed

# Cloning

1. If you want to use the GitHub desktop app instead of command line, click on "Open in Desktop"
2. You can use command line `git clone https://github.com/irudik/example-repo-7130.git`



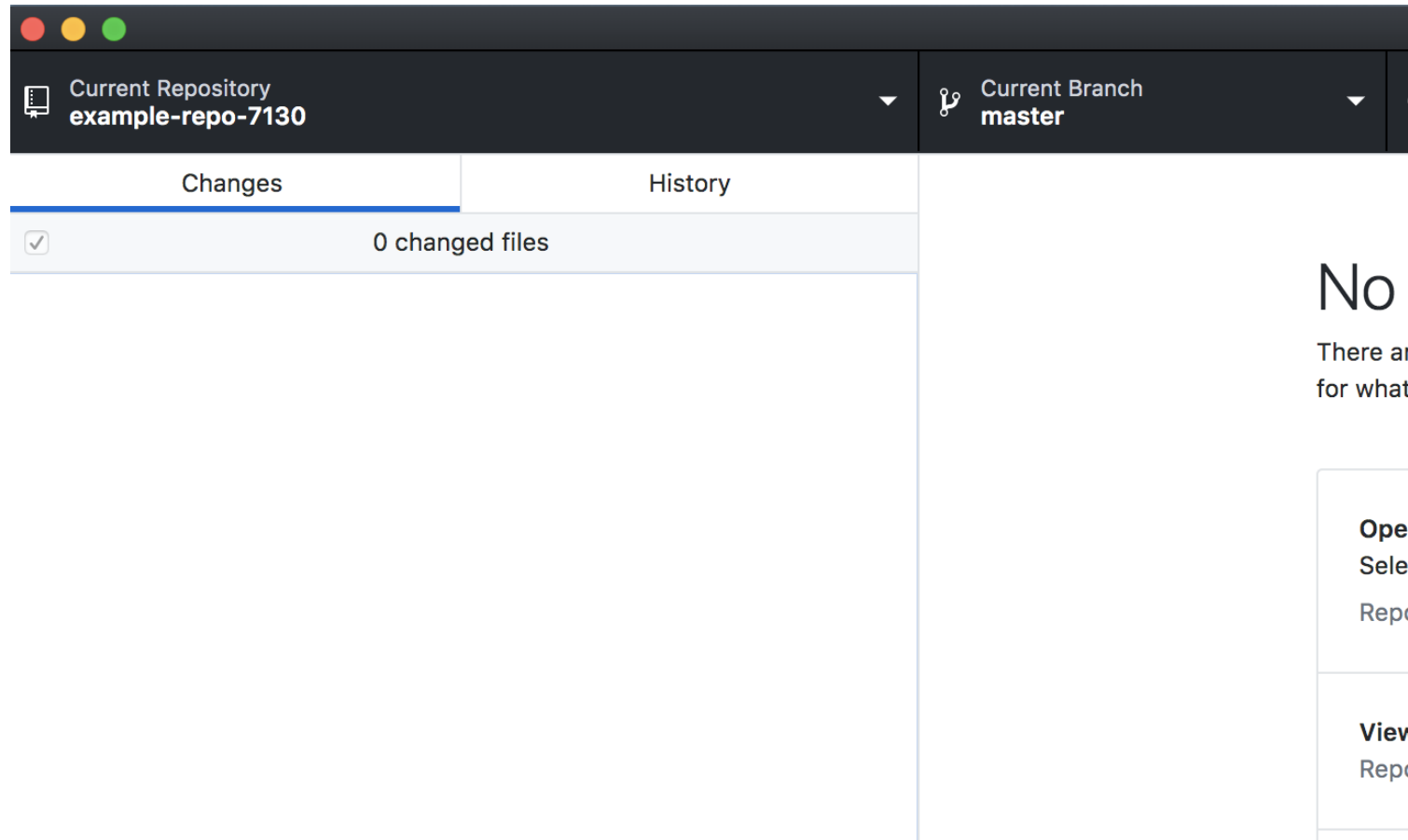
# Cloning

You're done! Now create and clone your own repository, initialized with a `README.md`, and follow along.

```
15:04 $ git clone https://github.com/irudik/example-repo-7130.git
Cloning into 'example-repo-7130'...
remote: Enumerating objects: 3, done.
remote: Counting objects: 100% (3/3), done.
remote: Total 16 (delta 0), reused 0 (delta 0), pack-reused 13
Unpacking objects: 100% (16/16), done.
~/Desktop/git
15:05 $ ls
ND-Flaring          drillinginfo-data-import  external-impacts-rps    irudik.github.io      optimal-climate-policy-aej  robust-control-jl
aem-7xxx            dynamic-stochastic-dice  growth-versus-levels   lrr-mcmc-dice          purple_air                 seere-lab
aem7130             ed_rubin_class           hr_recs                nascar_and_lead       rc_paper                  steering-the-climate-system
climate-learning-hpc example-repo-7130        hurricane_forecasts    optimal-climate-policy  rec_markets               workflow
~/Desktop/git
15:05 $
```

# Cloning

You're done! Now create and clone your own repository, initialized with a `README.md`, and follow along.

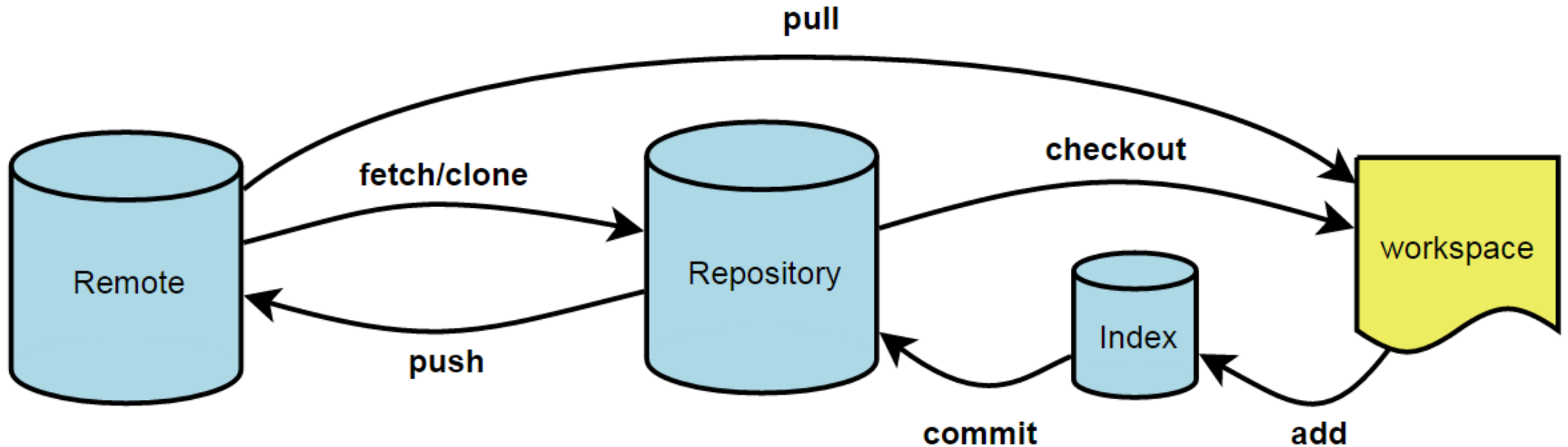


# The flow of Git

**Workspace:** the actual files on your computer

**Repository:** your saved local history of changes to the files in the repository

**Remote:** The remote repository on GitHub that allows for sharing across collaborators



# Using Git

There are only a few basic Git operations you need to know for versioning solo economics research efficiently



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**Add/Stage:** This adds files to the index, in other words, it takes a snapshot of the changes you want updated/saved in your local repository (i.e. your computer)

- `git add -A` Adds all files to the index

# Using Git

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**Add/Stage:** This adds files to the index, in other words, it takes a snapshot of the changes you want updated/saved in your local repository (i.e. your computer)

- `git add -A` Adds all files to the index

**Commit:** This records the changes to your local repository

- `git commit -m "Updated some files"` Commits the changes added to the index with the commit message in quotations

# Using Git

**Push:** This sends the changes to the remote repository (i.e. GitHub)

- `git push origin master` Pushes changes on your local repo to a **branch** called `master` on your remote, typically named `origin` (can often omit `origin master`)

# Using Git

**Push:** This sends the changes to the remote repository (i.e. GitHub)

- `git push origin master` Pushes changes on your local repo to a **branch** called `master` on your remote, typically named `origin` (can often omit `origin master`)

**Pull:** This takes changes on the remote and integrates them with the local repository (technically two operations are going on: fetch and merge)

- `git pull origin master` Integrates the changes on the `master` branch of your remote `origin` into your local repo (again, can often omit `origin master`)

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In your own repository do the following using either shell or GitHub Desktop:

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In your own repository do the following using either shell or GitHub Desktop:

1. Open `README.md` in some text editor and insert the following code: `# Hello World!`
2. Save `README.md`
3. Add the changes to `README.md` to the index
4. Commit the changes to your local repo with the message: "First README.md edit."
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Did the changes show up your repo's GitHub page?

# Using Git: branching

Some more (but not very) advanced operations relate to **branching**

Branching creates different, but parallel, versions of your code

e.g. If you want to test out a new feature of your model but don't want to contaminate your `master` branch, create a new branch and add the feature there

If it works out, you can bring the changes back into `master`

If it doesn't, just delete it



# Using Git: branching

**Branch:** This adds/deletes/merges different **branches** of your repository

- `git branch` Lists all local branches
- `git branch -a` Lists all remote branches
- `git branch solar-panels` Creates a new branch called `solar-panels`
- `git branch -d solar-panels` Deletes the local `solar-panels` branch

# Using Git: branching

**Checkout:** This switches you between different commits or branches

- `git checkout solar-panels` Switches you to branch `solar-panels`
- `git checkout -b wind-turbines` Creates a new branch called `wind-turbines` and checks it out

# Using Git: branching

**Merge:** This merges two separate histories together (e.g. merges a separate branch back into the master)

- `git checkout master`  
`git merge wind-turbines`

Checks out `master` and then merges `wind-turbines` back into the master

This brings the changes from `wind-turbines` since the initial branch back into the `master` branch

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1. Create and checkout a new branch called `test-branch`
2. Edit `README.md` and add the following code: `## your_name_here`
3. Save `README.md`
4. Add the changes to `README.md` to the index
5. Commit the changes to your local repo with the message: "Test change to README.md."
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Did the changes show up your repo's GitHub page?

# Teaming up

Find a partner for this next piece:

One of you invite the other to collaborate on the project (GitHub page → Settings → Manage access → invite a collaborator)

The screenshot shows the GitHub repository settings page for 'irudik / example-repo-7130'. The top navigation bar includes links for Code, Issues (0), Pull requests (0), Actions, Projects (0), Wiki, Security, Insights, and Settings. The 'Settings' tab is active. On the left, a sidebar menu lists various settings: Options (selected), Manage access, Branches, Webhooks, Notifications, Integrations & services, Deploy keys, Autolink references, Secrets, and Actions. Below this, there is a 'Moderation' section with 'Interaction limits'. The main content area is titled 'Who has access' and includes a 'Beta' badge and a link to 'Learn more or give us feedback'. It contains two panels: 'PUBLIC REPOSITORY' (with an eye icon) stating 'This repository is public and visible to anyone.' and 'DIRECT ACCESS' (with a person icon) stating '0 collaborators have access to this repository. Only you can contribute to this repository.' Below these panels is a 'Manage access' section with a large box containing a lock icon and the text 'You haven't invited any collaborators yet'. It also includes a note about GitHub Free limits and a green 'Invite a collaborator' button.

# Teaming up

If you were the one being invited, accept the invite, and clone the repo to your local



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If you were the one being invited, accept the invite, and clone the repo to your local

Now do the following:

1. Each of you edit the `# Hello World!` line of code to be something else and different from each other
2. Commit the changes to your local
3. Have the repo creator push their changes
4. Have the collaborator push their changes

# Can't push changes when you aren't updated

## Shell

```
[ag-aem-1bh hv2r:ivan_git ir229$ git push
To https://github.com/hollina/nascar_and_lead.git
 ! [rejected]          master -> master (fetch first)
error: failed to push some refs to 'https://github.com/hollina/nascar_and_lead.git'
hint: Updates were rejected because the remote contains work that you do
hint: not have locally. This is usually caused by another repository pushing
hint: to the same ref. You may want to first integrate the remote changes
hint: (e.g., 'git pull ...') before pushing again.
hint: See the 'Note about fast-forwards' in 'git push --help' for details.
ag-aem-1bh hv2r:ivan_git ir229$
```

It turns out that the second person can't push their local changes to the remote

The second person is pushing their history of changes

But the remote is already one commit ahead because of the first person, so the second person's changes can't be pushed

# Update by pulling after you commit local changes

You need to pull the remote changes first, but then you get the following message:

```
[ag-aem-1bh hv2r:ivan_git ir229$ git pull origin master
remote: Enumerating objects: 5, done.
remote: Counting objects: 100% (5/5), done.
remote: Compressing objects: 100% (2/2), done.
remote: Total 3 (delta 0), reused 0 (delta 0), pack-reused 0
Unpacking objects: 100% (3/3), done.
From https://github.com/hollina/nascar_and_lead
* branch                master      -> FETCH_HEAD
   3ec89b2..03c774b      master      -> origin/master
Auto-merging README.md
CONFLICT (content): Merge conflict in README.md
Automatic merge failed; fix conflicts and then commit the result.
ag-aem-1bh hv2r:ivan_git ir229$
```

And we got a **merge conflict** in `README.md`

This means there were differences between the remote and your local that conflicted

# Merge conflicts

Sometimes there will be conflicts between two separate histories

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When you try to merge these histories by pushing to the remote, Git will throw a **merge conflict**

When you get a merge conflict, the conflicted part of the code in your file will look like:

```
$ <<<<<<< HEAD
$ # nascar_and_unleaded ← my local version
$ =====
$ # nascar_and_leaded ← the remote version
$ >>>>>> 03c774b0e9baff0230855822a11e6ed24a0aa6b2
```

# Merge conflicts

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<<<<<< HEAD indicates the start of the conflicted code

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>>>>>> lots of numbers and letters indicates the end of the conflicted code and the hash (don't worry about it) for the specific commit

# Fixing the merge conflict

Merge conflicts can be fixed by directly editing the file, then doing an `add` of the conflicted file, a `commit`, and then a `push` to the remote

```
[ag-aem-1bh hv2r:ivan_git ir229$ git commit -am "Fixed merge conflict for README.md title."
[master f697e22] Fixed merge conflict for README.md title.
[ag-aem-1bh hv2r:ivan_git ir229$ git push origin master
Counting objects: 6, done.
Delta compression using up to 4 threads.
Compressing objects: 100% (4/4), done.
Writing objects: 100% (6/6), 784 bytes | 784.00 KiB/s, done.
Total 6 (delta 0), reused 0 (delta 0)
To https://github.com/hollina/nascar_and_lead.git
   03c774b..f697e22  master -> master
ag-aem-1bh hv2r:ivan_git ir229$
```

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[ag-aem-1bh hv2r:ivan_git ir229$ git push origin master
Counting objects: 6, done.
Delta compression using up to 4 threads.
Compressing objects: 100% (4/4), done.
Writing objects: 100% (6/6), 784 bytes | 784.00 KiB/s, done.
Total 6 (delta 0), reused 0 (delta 0)
To https://github.com/hollina/nascar_and_lead.git
   03c774b..f697e22  master -> master
ag-aem-1bh hv2r:ivan_git ir229$
```

Fixed!

# Git help pages are excellent, so is StackExchange

```
$ git help add
```

```
GIT-ADD(1)                                Git Manual                                GIT-ADD(1)

NAME
  git-add - Add file contents to the index

SYNOPSIS
  git add [--verbose | -v] [--dry-run | -n] [--force | -f] [--interactive | -i] [--patch | -p]
          [--edit | -e] [--[no-]all | --[no-]ignore-removal | [--update | -u]]
          [--intent-to-add | -N] [--refresh] [--ignore-errors] [--ignore-missing]
          [--chmod=+|->x] [--] [<pathspec>...]

DESCRIPTION
  This command updates the index using the current content found in the working tree, to prepare the content staged for the next commit. It typically adds the current content of
  existing paths as a whole, but with some options it can also be used to add content with only part of the changes made to the working tree files applied, or remove paths that do not
  exist in the working tree anymore.

  The "index" holds a snapshot of the content of the working tree, and it is this snapshot that is taken as the contents of the next commit. Thus after making any changes to the working
  tree, and before running the commit command, you must use the add command to add any new or modified files to the index.

  This command can be performed multiple times before a commit. It only adds the content of the specified file(s) at the time the add command is run; if you want subsequent changes
  included in the next commit, then you must run git add again to add the new content to the index.

  The git status command can be used to obtain a summary of which files have changes that are staged for the next commit.

  The git add command will not add ignored files by default. If any ignored files were explicitly specified on the command line, git add will fail with a list of ignored files. Ignored
  files reached by directory recursion or filename globbing performed by Git (quote your globs before the shell) will be silently ignored. The git add command can be used to add ignored
  files with the -f (force) option.

  Please see git-commit(1) for alternative ways to add content to a commit.

OPTIONS
  <pathspec>...
    Files to add content from. Fileglobs (e.g. *.c) can be given to add all matching files. Also a leading directory name (e.g. dir to add dir/file1 and dir/file2) can be given to
    update the index to match the current state of the directory as a whole (e.g. specifying dir will record not just a file dir/file1 modified in the working tree, a file dir/file2
    added to the working tree, but also a file dir/file3 removed from the working tree. Note that older versions of Git used to ignore removed files; use --no-all option if you want
    to add modified or new files but ignore removed ones.

    For more details about the <pathspec> syntax, see the pathspec entry in gitglossary(7).

  -n, --dry-run
    Don't actually add the file(s), just show if they exist and/or will be ignored.

  -v, --verbose
    Be verbose.

  -f, --force
    Allow adding otherwise ignored files.

  -i, --interactive
    Add modified contents in the working tree interactively to the index. Optional path arguments may be supplied to limit operation to a subset of the working tree. See "Interactive
    mode" for details.

  -p, --patch
    Interactively choose hunks of patch between the index and the work tree and add them to the index. This gives the user a chance to review the difference before adding modified
    contents to the index.

    This effectively runs add --interactive, but bypasses the initial command menu and directly jumps to the patch subcommand. See "Interactive mode" for details.

  -e, --edit
    Open the diff vs. the index in an editor and let the user edit it. After the editor was closed, adjust the hunk headers and apply the patch to the index.

    The intent of this option is to pick and choose lines of the patch to apply, or even to modify the contents of lines to be staged. This can be quicker and more flexible than using
    the interactive hunk selector. However, it is easy to confuse oneself and create a patch that does not apply to the index. See EDITING PATCHES below.

  -u, --update
    Update the index just where it already has an entry matching <pathspec>. This removes as well as modifies index entries to match the working tree, but adds no new files.

    If no <pathspec> is given when -u option is used, all tracked files in the entire working tree are updated (old versions of Git used to limit the update to the current directory
    and its subdirectories).

  -A, --all, --no-ignore-removal
```

# Managing tasks and workflow

GitHub is also very useful for task management in solo or group projects using **issues** and **pull requests**

**Issues:** task management for you and your collaborators, should be able to completely replace email

Let's look at the issues for the `Optim` package in Julia

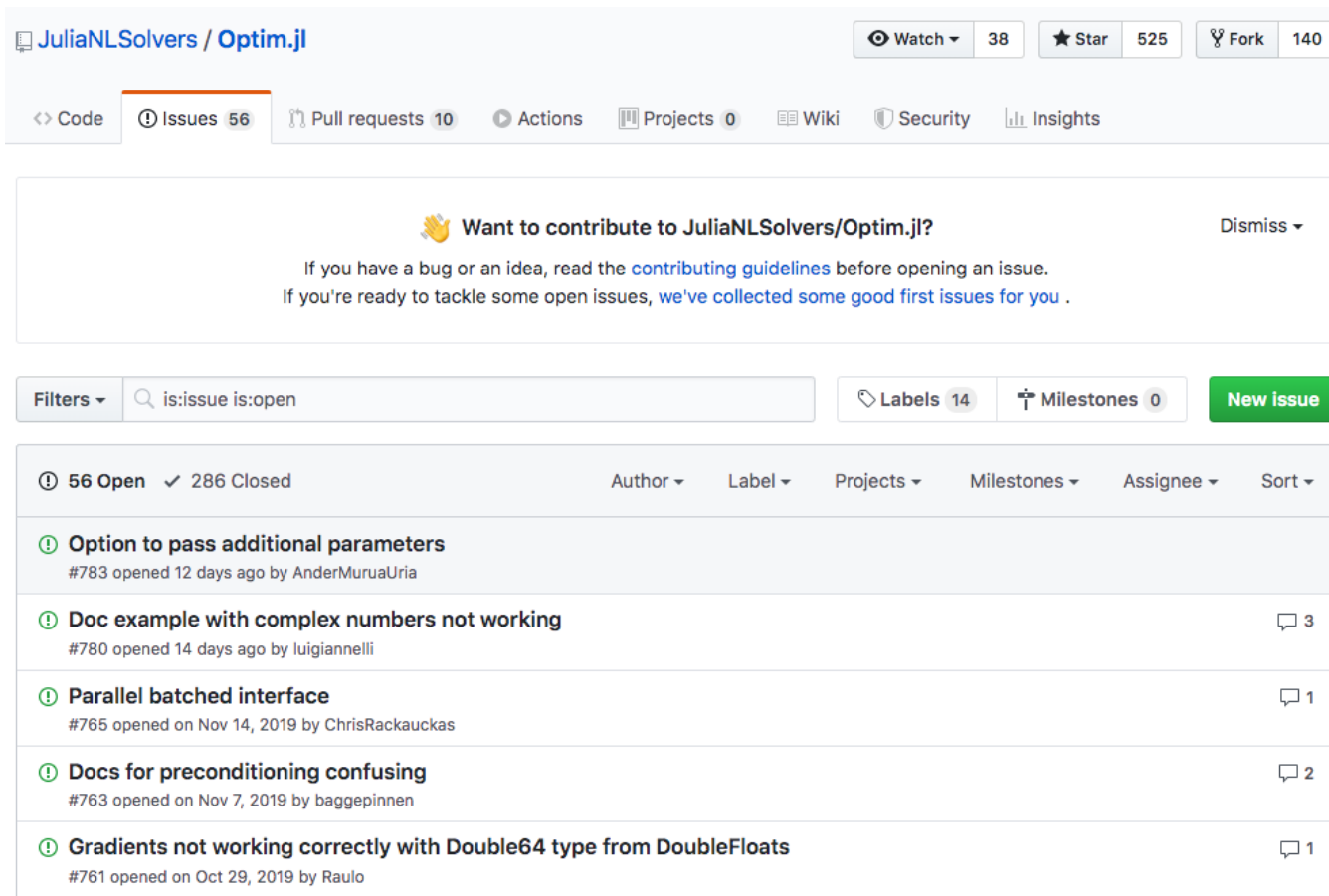


# Issues

The issues tab reports a list of 56 open issues (286 closed, meaning the task or problem has been solved)

Each issue has its own title

Lets check out the issue about the `Double64` type



The screenshot shows the GitHub interface for the repository JuliaNLSolvers / Optim.jl. The 'Issues' tab is selected, showing 56 open issues and 286 closed issues. A list of five open issues is displayed, each with a title, issue number, opening date, author, and comment count.

JuliaNLSolvers / Optim.jl

Watch 38 Star 525 Fork 140

Code Issues 56 Pull requests 10 Actions Projects 0 Wiki Security Insights

Want to contribute to JuliaNLSolvers/Optim.jl? Dismiss

If you have a bug or an idea, read the [contributing guidelines](#) before opening an issue.  
If you're ready to tackle some open issues, [we've collected some good first issues for you](#).

Filters is:issue is:open Labels 14 Milestones 0 New Issue

56 Open ✓ 286 Closed	Author	Label	Projects	Milestones	Assignee	Sort
<b>Option to pass additional parameters</b> #783 opened 12 days ago by AnderMuruaUri						
<b>Doc example with complex numbers not working</b> #780 opened 14 days ago by luigiannelli						3
<b>Parallel batched interface</b> #765 opened on Nov 14, 2019 by ChrisRackauckas						1
<b>Docs for preconditioning confusing</b> #763 opened on Nov 7, 2019 by baggepinnen						2
<b>Gradients not working correctly with Double64 type from DoubleFloats</b> #761 opened on Oct 29, 2019 by Raulo						1

# Issues

The issue is because one person has found an error with the package where it doesn't seem to work correctly with a certain type of variable `Double64`

Someone else has responded with some feedback

JuliaNLSolvers / Optim.jl Watch 38 Star 525 Fork 140

<> Code Issues 56 Pull requests 10 Actions Projects 0 Wiki Security Insights

Gradients not working correctly with Double64 type from DoubleFloats #761 New Issue

Open Raulo opened this issue on Oct 29, 2019 · 1 comment

Raulo commented on Oct 29, 2019

Any gradient code would not work correctly with Double64 float

```
function f(x)
    return (1.0 - x[1])^2 + 100.0 * (x[2] - x[1]^2)^2
end
function g!(G, x)
    G[1] = -2.0 * (1.0 - x[1]) - 400.0 * (x[2] - x[1]^2) * x[1]
    G[2] = 200.0 * (x[2] - x[1]^2)
end
using Optim
using DoubleFloats
initial_x=[Double64(0.0),Double64(0.0)]
optimize(f, g!, initial_x, method=BFGS(),show_trace=true)
```

It will crash with ERROR: ArgumentError: Value and slope at step length = 0 must be finite. after not realizing the procedure converged and showing NaNs as Gradient norm: 24 3.391382e-204 NaN. Using Double64 type constants in f(x) and g(x) does not help. It will work without explicit gradient:

```
optimize(f, initial_x, method=BFGS(),show_trace=true)
```

but the gradient norm will be printed as NaN, too.

The code works correctly with BigFloat, ArbFloat from ArbNumerics, and Float128 from Quadmath, so it may be an obscure bug in DoubleFloats.

pkofod commented on Dec 20, 2019 Collaborator

That's interesting... So it does seem to work, but something is weird with the tracing (I add print statements in the g code)

```
julia> optimize(f, g!, initial_x, method=BFGS(),show_trace=true)
```

Assignees  
No one assigned

Labels  
None yet

Projects  
None yet

Milestone  
No milestone

Linked pull requests  
Successfully merging a pull request may close this issue.

None yet

Notifications  
Customize  
Subscribe  
You're not receiving notifications from this thread.

2 participants

# Issues

From the issues tab, click the green **new issue** button which takes you here

You can:

- create a title
- add some text for the body of the issue
- select people to assign the issue to
- add some labels

The screenshot shows the GitHub interface for creating a new issue. At the top, the repository name 'irudik / example-repo-7130' is displayed, along with buttons for 'Unwatch', 'Star' (0), and 'Fork' (0). Below this is a navigation bar with tabs for 'Code', 'Issues' (0), 'Pull requests' (0), 'Actions', 'Projects' (0), 'Wiki', 'Security', 'Insights', and 'Settings'. The 'Issues' tab is active.

The main form for creating an issue is titled 'Problems with plotting map'. It has a 'Write' tab and a 'Preview' tab. The 'Write' tab is active, showing a text area with the content: 'There seems to be an error in the code plotting the maps where the colors are not assigned right.' Below the text area is a placeholder for attaching files: 'Attach files by dragging & dropping, selecting or pasting them.' A green button labeled 'Submit new Issue' is at the bottom right of the form.

On the right side of the form, there are several sections for configuring the issue:

- Assignees:** A dropdown menu showing 'irudik' as the selected assignee.
- Labels:** A dropdown menu showing 'bug' as the selected label.
- Projects:** A dropdown menu showing 'None yet'.
- Milestone:** A dropdown menu showing 'No milestone'.
- Linked pull requests:** A section indicating that successfully merging a pull request may close this issue.
- Helpful resources:** A link to 'GitHub Community Guidelines'.

At the bottom of the form, there is a note: 'Remember, contributions to this repository should follow our GitHub Community Guidelines.'

# Issues

The issue keeps track of the history of everything that's happened to it

irudik / example-repo-7130

Unwatch 1 Star 0 Fork 0

<> Code Issues 1 Pull requests 0 Actions Projects 0 Wiki Security Insights Settings

## Problems with plotting map #1

Open irudik opened this issue now · 0 comments

irudik commented now

Owner +😊 ...

There seems to be an error in the code plotting the maps where the colors are not assigned right.

irudik added the **bug** label now

irudik self-assigned this now

Write Preview AA B i “ <> ☰ ☷ ☹ @ 🚩 ↶

Leave a comment

Attach files by dragging & dropping, selecting or pasting them.

Close issue Comment

Remember, contributions to this repository should follow our [GitHub Community Guidelines](#).

Assignees

irudik

Labels

bug

Projects

None yet

Milestone

No milestone

Linked pull requests

Successfully merging a pull request may close this issue.

None yet

Notifications Customize

Unsubscribe

You're receiving notifications because you're watching this repository.

1 participant

# Issues

You can reference people with `@` which brings up a dropdown menu of all collaborators on the project

The screenshot shows a GitHub issue page for the repository 'irudik / example-repo-7130'. The issue title is 'Map lines are wrong #2'. The issue is open and was created by 'irudik'. The issue description is 'The lines on the map look terrible.' The issue has one comment from 'irudik' stating 'The lines on the map look terrible.' The issue is labeled 'bug' and is assigned to 'irudik'. The issue is self-assigned to 'irudik'. The issue is not assigned to any other users. The issue is not labeled with any other labels. The issue is not assigned to any projects. The issue is not assigned to any milestones. The issue is not linked to any pull requests. The issue is not linked to any notifications. The issue is not linked to any subscriptions.

irudik / example-repo-7130

Unwatch 1 Star 0 Fork 0

Code Issues 2 Pull requests 0 Actions Projects 0 Wiki Security Insights Settings

### Map lines are wrong #2

Open irudik opened this issue now · 0 comments

irudik commented now

The lines on the map look terrible.

irudik added the bug label now

irudik self-assigned this now

Assignees

irudik

Labels

bug

Projects

None yet

Milestone

No milestone

Linked pull requests

Successfully merging a pull request may close this issue.

None yet

Notifications

Customize

Unsubscribe

You're receiving notifications because you're watching this repository

Remember, contributions to this repository should follow our [GitHub Community Guidelines](#).

# Issues

You can also reference *other issues* if they're related by using `#` which brings up a dropdown of all issues for your repository

irudik / example-repo-7130

Unwatch 1 Star 0 Fork 0

Code Issues 2 Pull requests 0 Actions Projects 0 Wiki Security Insights Settings

## Map lines are wrong #2

Open irudik opened this issue 1 minute ago · 0 comments

irudik commented 1 minute ago

The lines on the map look terrible.

irudik added the **bug** label 1 minute ago

irudik self-assigned this 1 minute ago

Write Preview

@irudik, this is related to #

#1 Problems with plotting map

Attach files by dragging & dropping, selecting or pasting them.

Close and comment Comment

Remember, contributions to this repository should follow our [GitHub Community Guidelines](#).

Assignees

irudik

Labels

bug

Projects

None yet

Milestone

No milestone

Linked pull requests

Successfully merging a pull request may close this issue.

None yet

Notifications

Customize

Unsubscribe

You're receiving notifications because you're watching this repository.

1 participant

irudik

# Issues

Issues can also be referenced in your commits to your project by adding `#issue_number_here` to the commit message

```
16:21 ~ $ git add README.md
~/Desktop/git/example-repo-7130 [master|● 1]
16:21 $ git cm "#2 fix code error for map lines."
[master dd9fd10] #2 fix code error for map lines.
 1 file changed, 2 insertions(+)
~/Desktop/git/example-repo-7130 [master ↑·1|✓]
16:21 $ git push
Counting objects: 3, done.
Delta compression using up to 4 threads.
Compressing objects: 100% (2/2), done.
Writing objects: 100% (3/3), 315 bytes | 315.00 KiB,
Total 3 (delta 0), reused 0 (delta 0)
To https://github.com/irudik/example-repo-7130.git
 06e2f7a..dd9fd10  master -> master
```

# Issues

Then those commits show up in your issue so you have a history of what code changes have been made.

The screenshot shows a GitHub issue page for the repository 'irudik / example-repo-7130'. The issue title is 'Map lines are wrong #2' and it is marked as 'Open'. The issue was opened 5 minutes ago by 'irudik' and has 0 comments. The issue description is 'The lines on the map look terrible.' The issue has a 'bug' label and is self-assigned to 'irudik'. A commit 'dd9fd10' titled '#2 fix code error for map lines.' is linked to the issue. The right sidebar shows the issue's metadata: Assignees (irudik), Labels (bug), Projects (None yet), Milestone (No milestone), Linked pull requests (Successfully merging a pull request may close this issue.), Notifications (Unsubscribe), and 1 participant (irudik). The bottom of the page shows a comment box with the text '@irudik, this is related to #' and a 'Close and comment' button.

irudik / example-repo-7130

Unwatch 1 Star 0 Fork 0

Code Issues 2 Pull requests 0 Actions Projects 0 Wiki Security Insights Settings

## Map lines are wrong #2

Open irudik opened this issue 5 minutes ago · 0 comments

Owner + 👤 ...

irudik commented 5 minutes ago

The lines on the map look terrible.

irudik added the **bug** label 5 minutes ago

irudik self-assigned this 5 minutes ago

irudik added a commit that referenced this issue 2 minutes ago

#2 fix code error for map lines. dd9fd10

Write Preview AA B i “ < > ☰ ☷ ☹ @ 📎 ↩

@irudik, this is related to #

Attach files by dragging & dropping, selecting or pasting them.

Close and comment Comment

Remember, contributions to this repository should follow our [GitHub Community Guidelines](#).

Assignees

irudik

Labels

bug

Projects

None yet

Milestone

No milestone

Linked pull requests

Successfully merging a pull request may close this issue.

None yet

Notifications

Customize

Unsubscribe

You're receiving notifications because you're watching this repository.

1 participant

irudik



# Issues

If you click on the commit, it takes you to the `git diff` which shows you any changes to files made in that commit

The screenshot shows a GitHub repository page for `irudik / example-repo-7130`. The repository has 1 issue, 0 pull requests, 0 actions, 0 projects, 0 wiki pages, 0 security issues, 0 insights, and 0 settings. The current view is the `Issues` tab, showing issue #2: "fix code error for map lines." The issue was committed by `irudik` 3 minutes ago. The commit message is "fix code error for map lines." The commit hash is `dd9fd10ee70b64c91fac1a2754d46c6bb0c7dc7c`. The diff shows a change in `README.md`, adding a line: `# example-repo-7130`. The diff is shown in a split view, with the original code on the left and the changes on the right. The changes are highlighted in green. The diff shows a change in `README.md`, adding a line: `# example-repo-7130`. The diff is shown in a split view, with the original code on the left and the changes on the right. The changes are highlighted in green. The diff shows a change in `README.md`, adding a line: `# example-repo-7130`. The diff is shown in a split view, with the original code on the left and the changes on the right. The changes are highlighted in green.

irudik / example-repo-7130

Unwatch 1 Star 0 Fork 0

Code Issues 2 Pull requests 0 Actions Projects 0 Wiki Security Insights Settings

#2 fix code error for map lines. [Browse files](#)

master

irudik committed 3 minutes ago 1 parent 06e2f7a commit dd9fd10ee70b64c91fac1a2754d46c6bb0c7dc7c

Showing 1 changed file with 2 additions and 0 deletions. Unified Split

2 README.md

```
... @@ -1,3 @@
1 # example-repo-7130
2 +
3 + making change so I can show issue
```

0 comments on commit dd9fd10 [Lock conversation](#)

Write Preview

AA B i “ <> ↺ ⋮ ⋮ ⋮ @ 🚩 ↶

Leave a comment

Attach files by dragging & dropping, selecting or pasting them.

Comment on this commit

# Windows users!!!!

## Do the following:

- Open up a command prompt or Git Bash (recommend Bash from here on out)
- Run the following commands:

```
git config --global core.eol lf  
git config --global core.autocrlf false
```

# Windows users!!!!

## Do the following:

- Open up a command prompt or Git Bash (recommend Bash from here on out)
- Run the following commands:

```
git config --global core.eol lf  
git config --global core.autocrlf false
```

Git tracks changes by specific characters at the end of each line, it does this differently across Windows/Unix by default

# Next up:

Optimization: root-finding and maximization/minimization