



git



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A Beginner's Guide to Git

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@dh4gan

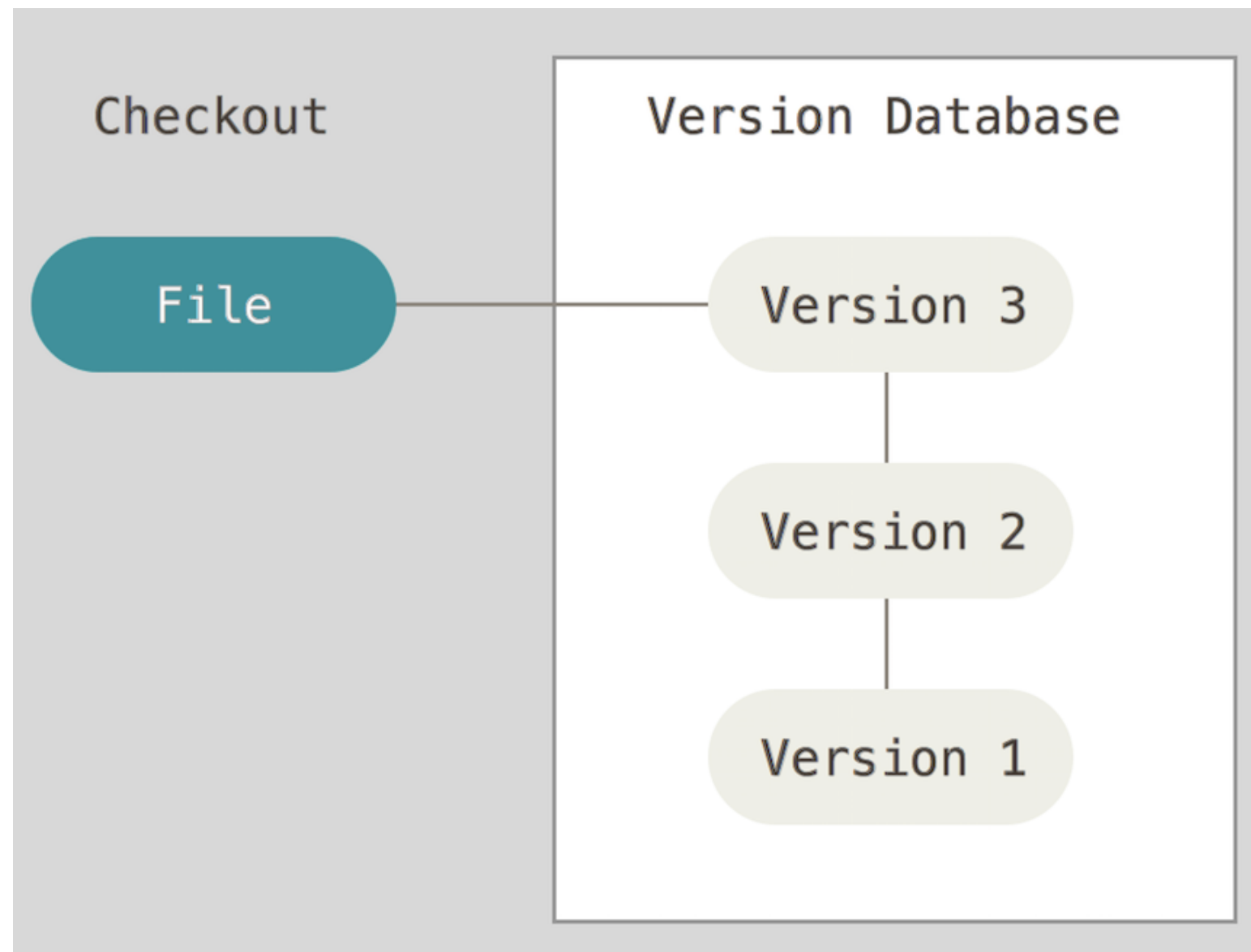
dhf3@st-andrews.ac.uk

<http://star-www.st-and.ac.uk/~dhf3/>



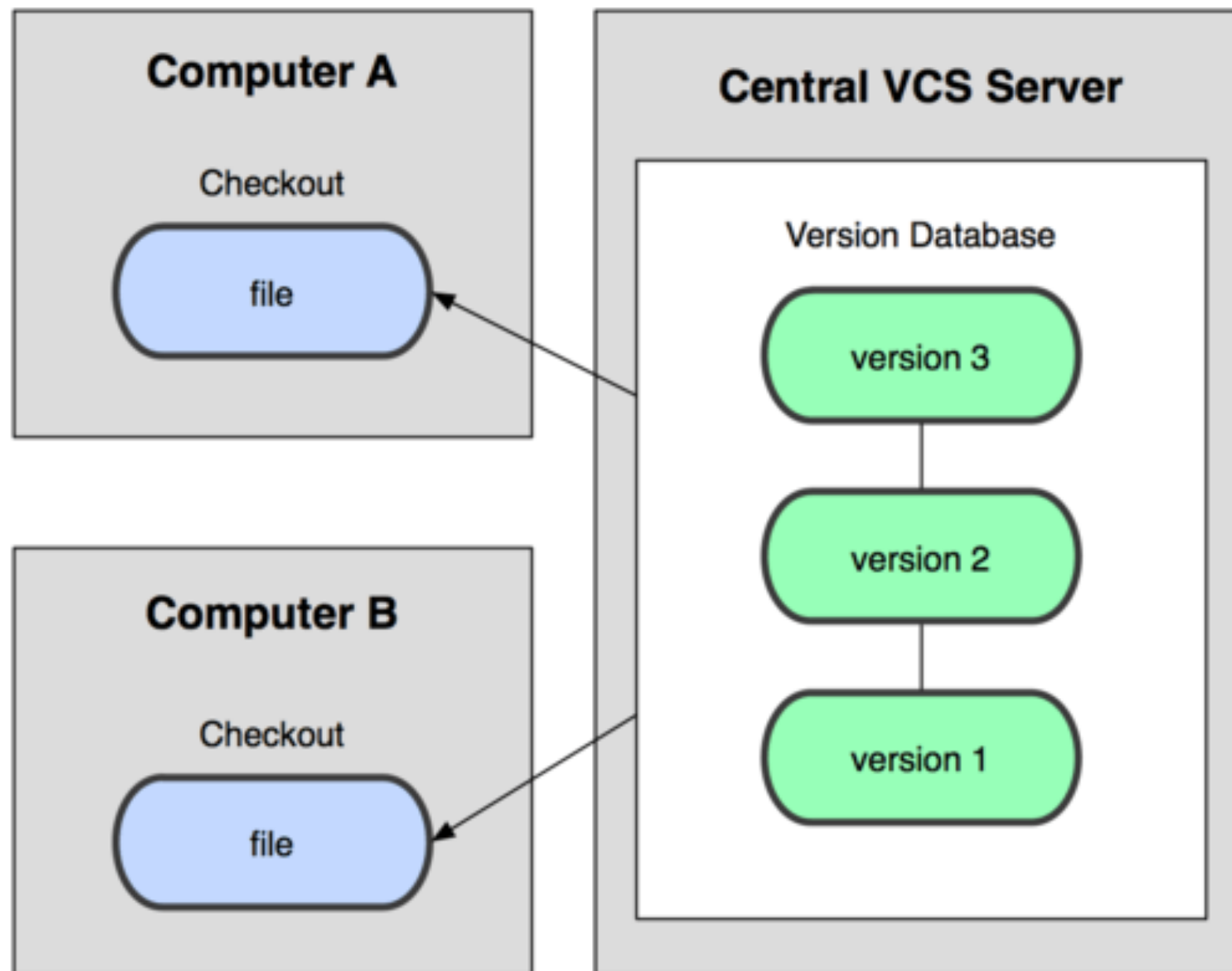
What is Version Control?

An efficient way of tracking changes to files
Instead of saving entire directory, save *changesets* or *commits*





Centralised Version Control



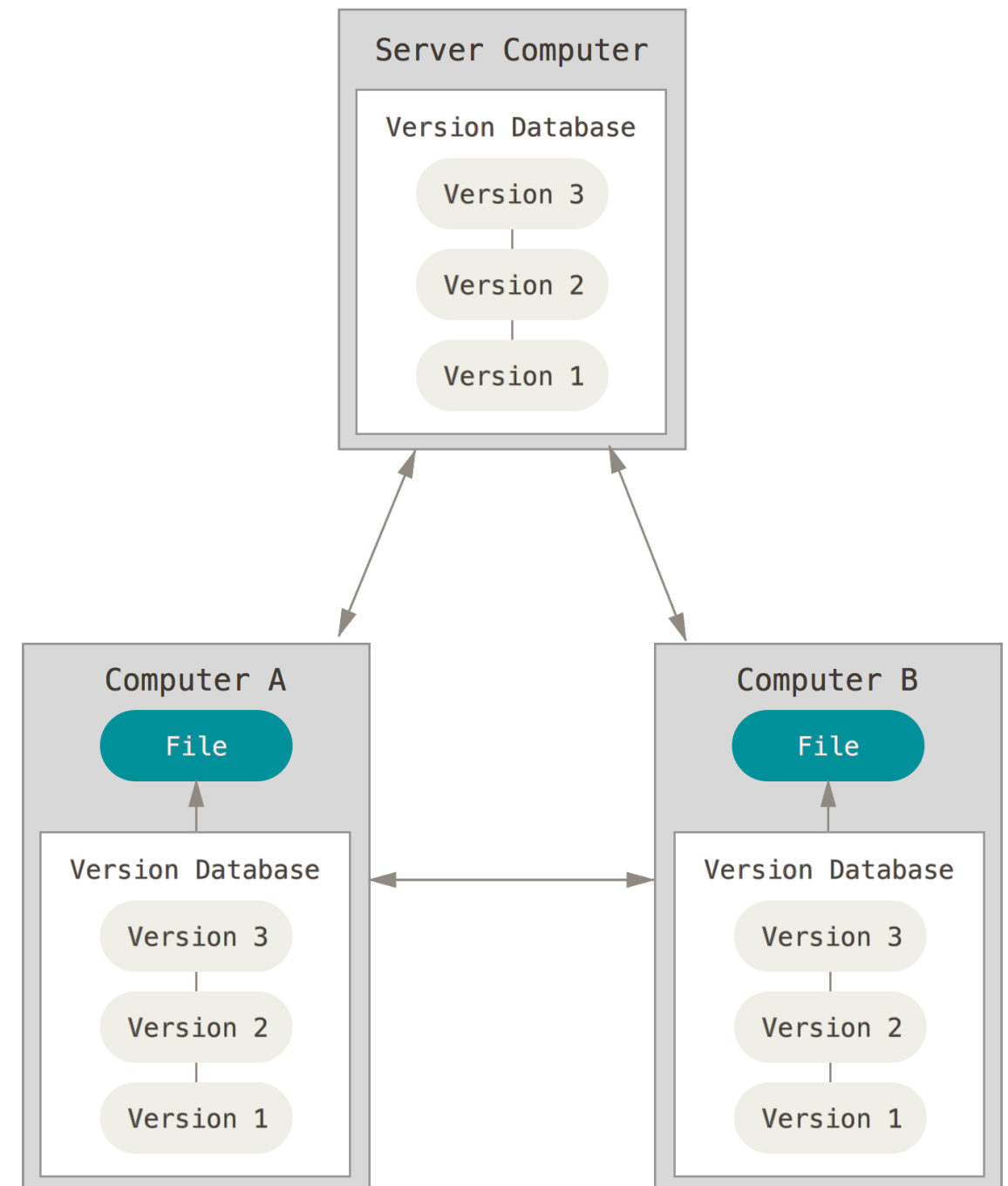
e.g. CVS, Subversion

Distributed Version Control

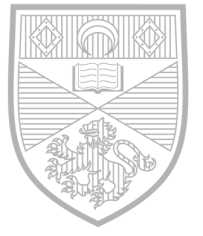
Distributed Version Control

Each Computer stores a copy
of the version database

e.g. git, mercurial



Installing git



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Installing on Linux

If you want to install the basic Git tools on Linux via a binary installer, you can generally do so through the basic package-management tool that comes with your distribution. If you're on Fedora for example, you can use yum:

```
$ sudo yum install git-all
```

If you're on a Debian-based distribution like Ubuntu, try apt-get:

```
$ sudo apt-get install git-all
```

For more options, there are instructions for installing on several different Unix flavors on the Git website, at <http://git-scm.com/download/linux>.

Installing on Mac

There are several ways to install Git on a Mac. The easiest is probably to install the Xcode Command Line Tools. On Mavericks (10.9) or above you can do this simply by trying to run *git* from the Terminal the very first time. If you don't have it installed already, it will prompt you to install it.

If you want a more up to date version, you can also install it via a binary installer. An OSX Git installer is maintained and available for download at the Git website, at <http://git-scm.com/download/mac>.

Configuring git

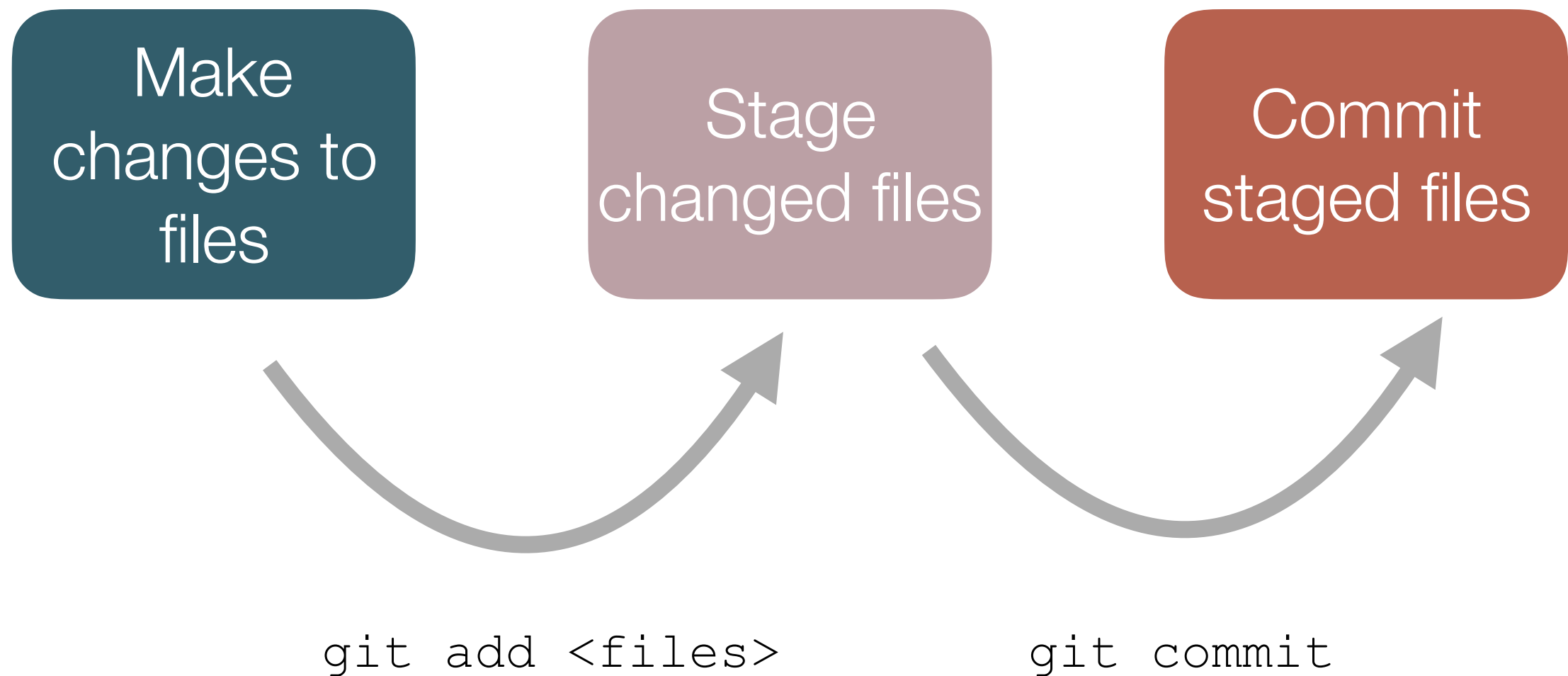
```
> git config -- global user.name "John Doe"  
> git config -- global user.email "johndoe@example.com"
```

This ensures that your commits are correctly labelled
(Crucial if you are collaborating on code)
Settings stored in `~/ .gitconfig`

```
GNU nano 2.0.6 File: /Users/dhf/.gitconfig  
[user]  
    name = Duncan Forgan  
    email = dhf3@st-andrews.ac.uk  
[alias]  
    tree = log --graph --all --decorate --pretty=oneline --abbrev-commit  
[color]  
    ui = auto
```



How git creates a new version of code



A Simple Recipe for Local Version Control

```
> cd dir/where/code/is      # Hopefully obvious
> git init                  # Create a git repository
> git add <files>           # Select files to be committed
> git commit                # Takes you to an editor screen
                             # (write a commit message)
```

Modify code, git add, git commit, modify code, git add, git commit...

```
> git status                # Check status of all files
> git log                   # Lists all your commits
> git diff                  # All changes in code since last commit
```


Undoing Things

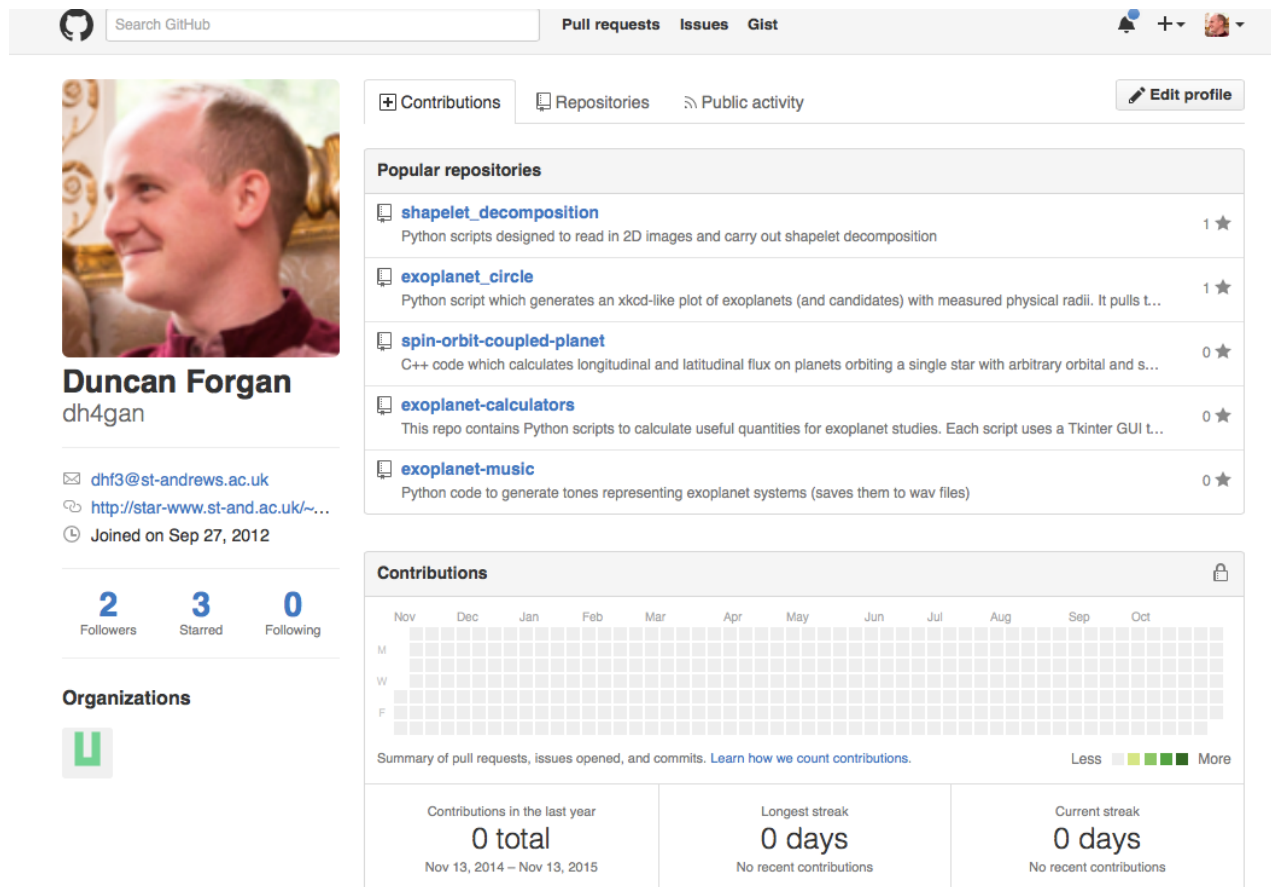


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```
> git checkout <file>    # Erase file changes since last commit  
  
> git reset HEAD~<n>    # Go back n commits  
  
> git rm -- cached <file> # Stop tracking a file  
                           (without deleting it)
```

Using Remote Code Repositories

GitHub vs Bitbucket



Search GitHub Pull requests Issues Gist

Contributions Repositories Public activity Edit profile

Popular repositories

- shapelet_decomposition** 1 ★
Python scripts designed to read in 2D images and carry out shapelet decomposition
- exoplanet_circle** 1 ★
Python script which generates an xkcd-like plot of exoplanets (and candidates) with measured physical radii. It pulls t...
- spin-orbit-coupled-planet** 0 ★
C++ code which calculates longitudinal and latitudinal flux on planets orbiting a single star with arbitrary orbital and s...
- exoplanet-calculators** 0 ★
This repo contains Python scripts to calculate useful quantities for exoplanet studies. Each script uses a Tkinter GUI t...
- exoplanet-music** 0 ★
Python code to generate tones representing exoplanet systems (saves them to wav files)

Contributions

Summary of pull requests, issues opened, and commits. [Learn how we count contributions.](#) Less More

Contributions in the last year
0 total
Nov 13, 2014 – Nov 13, 2015

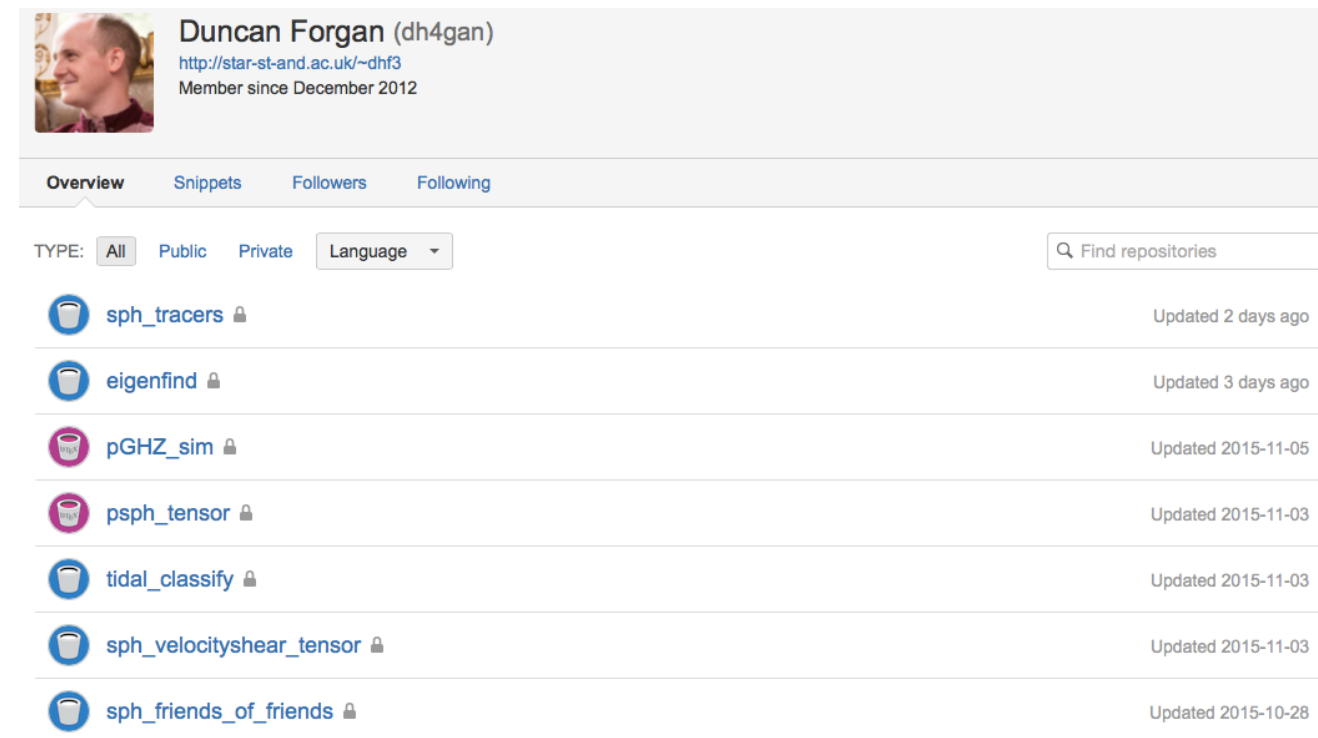
Longest streak
0 days
No recent contributions

Current streak
0 days
No recent contributions

2 Followers 3 Starred 0 Following

Organizations

Accounts Free
Public Repos Free
Limited Private Repos (subs)



Duncan Forgan (dh4gan)
<http://star-st-and.ac.uk/~dhf3>
Member since December 2012

Overview Snippets Followers Following

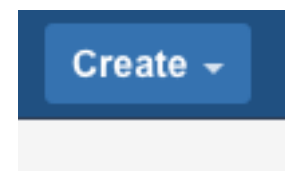
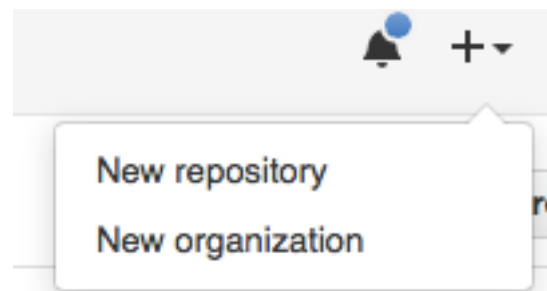
TYPE: All Public Private Language Find repositories

- sph_tracers** Updated 2 days ago
- eigenfind** Updated 3 days ago
- pGHZ_sim** Updated 2015-11-05
- psph_tensor** Updated 2015-11-03
- tidal_classify** Updated 2015-11-03
- sph_velocityshear_tensor** Updated 2015-11-03
- sph_friends_of_friends** Updated 2015-10-28

Accounts Free
Private Repos Free
Limited Public Repos (subs)

Setting up a Remote Code Repository

First - go online and create remote repository at website
Obtain its URL



```
> git remote add origin <url>  
> git push origin master  
> git pull origin master
```

```
# Create repo with alias 'origin'  
# Send code to remote repo  
# Receive code from remote repo
```

`master` refers to the branch of code you are working on

Branching And Merging

You should always have a stable, working version of code (`master`)
If you want to add a feature, do this on a branch
Once the feature works, you can merge it into `master`

```
> git checkout -b hotfix  
> git add, commit etc  
> git checkout master  
> git merge hotfix
```

