

# ssh for GitHub

## 1 Generating an ssh key

1. Check if you already have an ssh key using `ls -a`
  - If you see a hidden file called `.ssh` this contains your key. Do not do anything else and skip to 'Adding the ssh key to Github'
2. In your terminal copy the command:

```
ssh-keygen -t ed25519 -C "your_email@example.com"
```

- Use the same email that you use for Github
3. You will see the output:

```
> Generating public/private ALGORITHM key pair.  
> Enter a file in which to save the key (/Users/YOU/.ssh/id_ALGORITHM):  
[Press enter]
```

- You can change the file location where the key is made, but it is only necessary if you already have a ssh key.
  - You already checked for this, so just press enter
4. Next you will be prompted for a passphrase. Leave it empty (give no passphrase), and just press enter.
    - It is possible to add the passphrase to a keychain, but we wont be doing that since this creates the need for the ssh-agent.
    - If you choose to give it a passphrase then you will have to give this every time you use ssh or add the passphrase to keychain.

Now your key is generated. Find it using `ls -a`. It will be the hidden file `.ssh`

```
> Enter passphrase (empty for no passphrase): [Type a passphrase]
> Enter same passphrase again: [Type passphrase again]
```

## 2 Adding ssh key to Github

1. Find your `.ssh` folder using `ls -a`. Use `cd .ssh` to go into the folder.

```
elizabethhawkins@Mac ~ % ls -a
.          CANGA-firedrake
..         CANGA-Models
.bash_history  cmor_420_520
.bash_sessions coding-class
.CFUserTextEncoding Computational_Neur
.cisco        Dealii
.config       Desktop
.cups         Documents
.DS_Store     Downloads
.exercise_1.sh.swp EHawkins.txt
.generating_ssh_key.txt.swp example.txt
.gitconfig    firedrake
.lesshst      firedrake-install
.local        firedrake-install.
.matplotlib   first_git_repo
.ssh          first_shell_script
.swiftpm      first-program.dSYM
T            T

elizabethhawkins@Mac ~ % cd .ssh
elizabethhawkins@Mac .ssh % ls
id_ed25519  id_ed25519.pub  known_hosts  known_hosts.
```

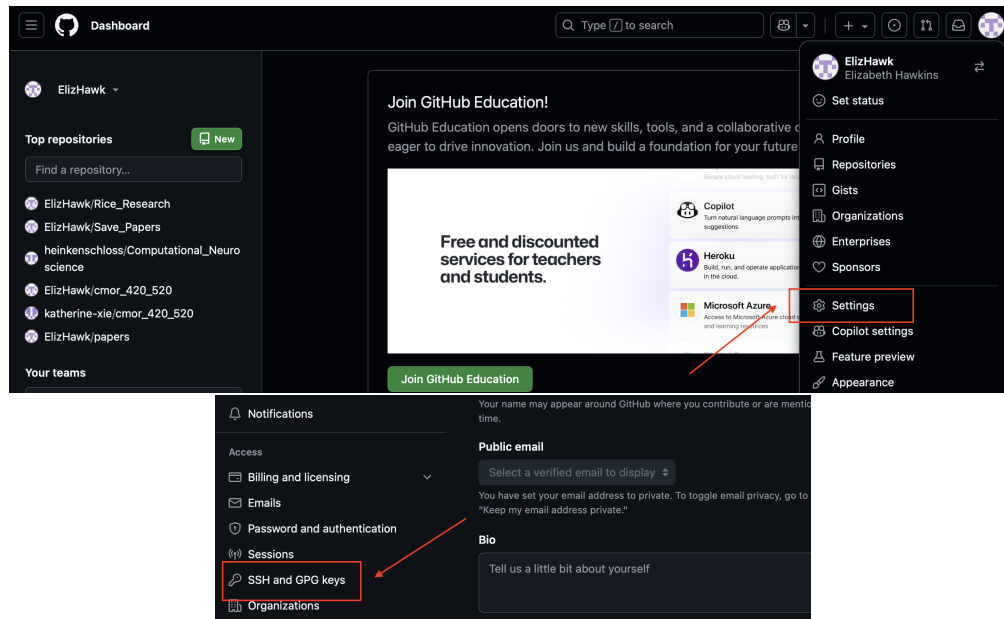
2. Use vim to open `id_ed25519.pub` and copy the contents

- You can also use the command to copy the content to the clipboard:

```
pbcopy < /.ssh/id_ed25519.pub
```

- This file contains the public information needed by the remote server to give/recieve permissions

3. Go to Github, and go to 'settings' from the upper right icon. Go to the 'ssh and gpt keys' tab.



4. Choose 'New ssh key'.
  - (a) Give the key any title (it can be anything).
  - (b) Paste the copied key into the space.

A screenshot of the 'Add new SSH Key' form in GitHub. The form has a title 'Add new SSH Key' and three sections: 'Title' with a text input field, 'Key type' with a dropdown menu set to 'Authentication Key', and 'Key' with a large text area. Below the 'Key' text area, there is a note: 'Begins with 'ssh-rsa', 'ecdsa-sha2-nistp256', 'ecdsa-sha2-nistp384', 'ecdsa-sha2-nistp521', 'ssh-ed25519', 'sk-ecdsa-sha2-nistp256@openssh.com', or 'sk-ssh-ed25519@openssh.com''.

Now you are done! (You may have to re-clone repositories using the ssh option)