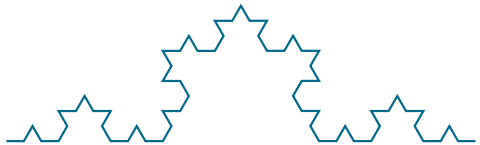
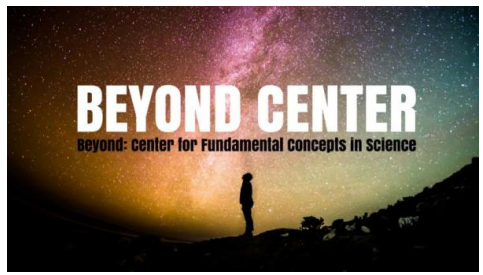
# Git Your LaTeX On!

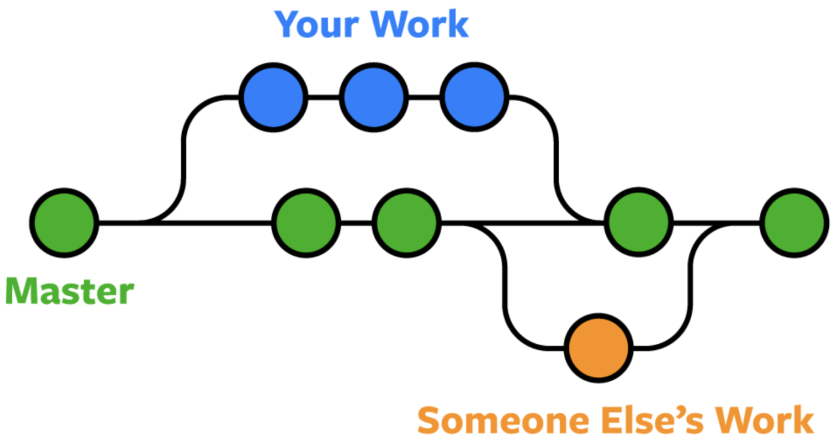
Joseph M. Fedrow

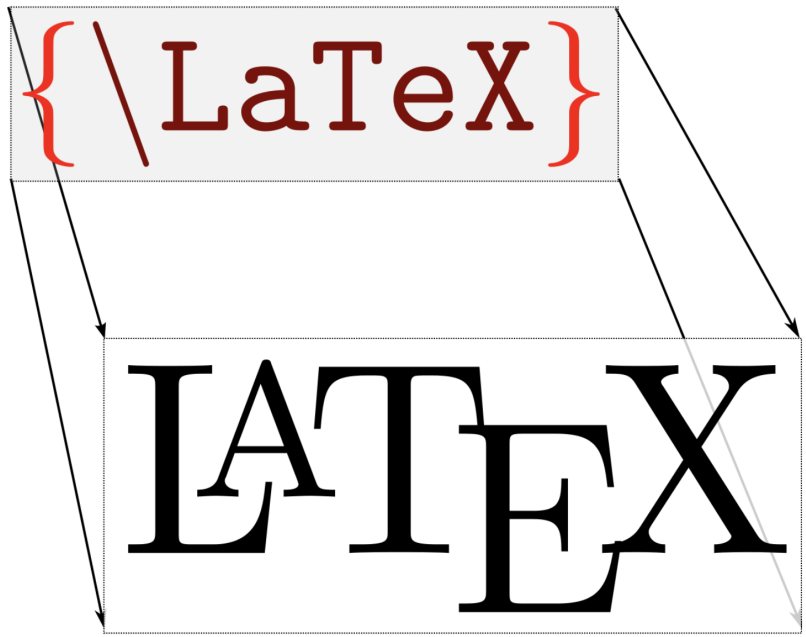


June 26, 2024

# WHAT ARE GIT AND LATEX?

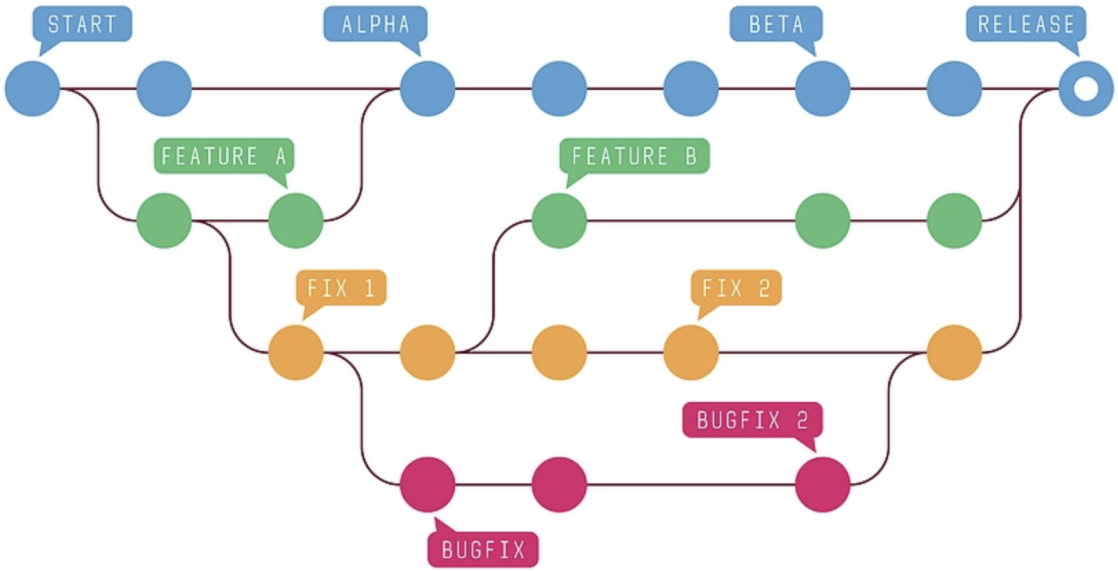

Version control and Typesetting

# HOW CAN THEY HELP YOU?

## Version Control

The practice of tracking and managing changes to source code over time

Really shines when working in teams on collaborative projects.



# HOW CAN THEY HELP YOU?

Typesetting

Helps make your documents looks professional.

Really shines when working with equations and tables.

$$\partial_u \xi_z^{(1)} + \frac{1}{u}\xi_z^{(1)} = \frac{1}{(\pi T R)^2 u}\left[C_z H'_{zz} + C_t H'_{tz}\right]$$

```
\partial _ { u } \xi _ { z } ^ { ( 1 ) } + { \frac { 1 } { u } } \xi _
 { z } ^ { ( 1 ) } = { \frac { 1 } { ( \pi T R ) ^ { 2 } u } } \left[ C _ {
z } H _ { z z } ^ { \prime } + C _ { t } H _ { t z } ^ { \prime } \right]
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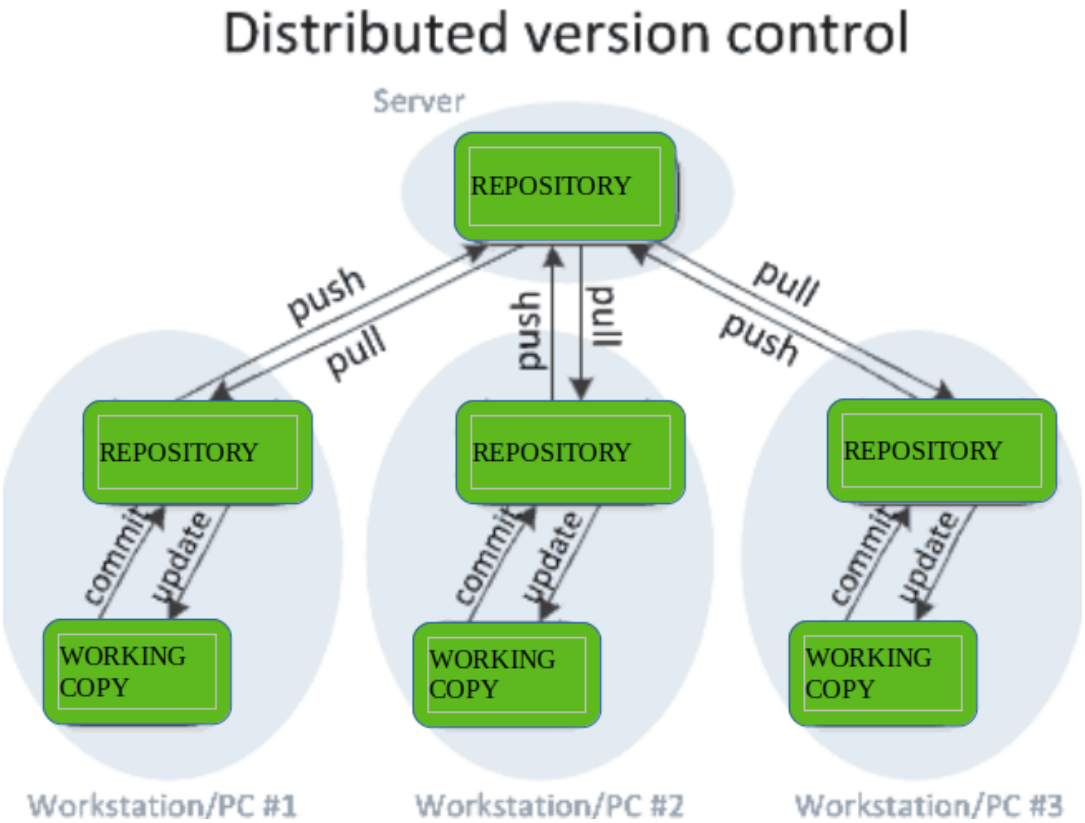
# THE PHILOSOPHY OF GIT

Git is an open source *Distributed* Version Control System (DVCS)

Every clone is really a full backup of all the data.



# THE PHILOSOPHY OF GIT

Nearly Everything is Local

Snapshots of Data

Git has Integrity

# BONUS QUESTION 1!

What does Git stand for?

# BONUS QUESTION 1!

## What does Git stand for?

"git" can mean anything, depending on your mood.

- Random three-letter combination that is pronounceable, and not actually used by any common UNIX command. The fact that it is a mispronunciation of "get" may or may not be relevant.
- Stupid. Contemptible and despicable. Simple. Take your pick from the dictionary of slang.
- "Global information tracker": you're in a good mood, and it actually works for you. Angels sing, and a light suddenly fills the room.
- "Goddamn idiotic truckload of sh*t": when it breaks.

Linus Torvalds, creator of Linux and Git

# GIT IS NOT GITHUB!

Git is a piece of software. GitHub is an online SaaS service.

| GIT | GITHUB |
|---|---|
| Installed locally | Hosted in the cloud |
| First released in 2005 | Company launched in 2008 |
| Maintained by The Linux Foundation | Purchased in 2018 by Microsoft |
| Focused on version control and code sharing | Focused on centralized source code hosting |
| Primarily a command-line tool | Administered through the web |
| Provides a desktop interface named Git Gui | Desktop interface named GitHub Desktop |
| No user management features | Built-in user management |
| Minimal exteral tool configuration features | Active marketplace for tool integration |
| Competes with Mercurial, Subversion, IBM, Rational Team Concert and ClearCase | Competes with Atlassian Bitbucket and GitLab |
| Open source licensed | Includes a free tier and pay-for-use tiers |

# How to Use Git

# SETTING UP GIT

## Install and Configure

- git - -version
- git config - -global user.name ”John Doe”
- git config - -global user.email johndoe@example.com

# USING GIT

## Initializing a Repository in an Existing Directory

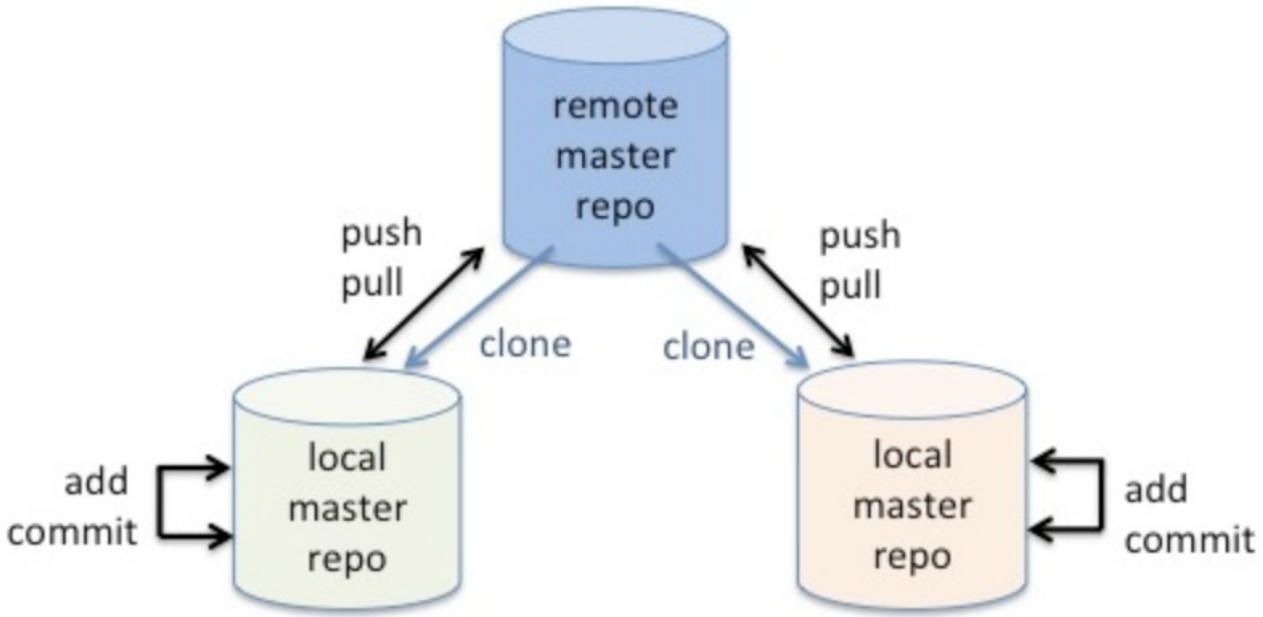
- git init
- git add myfavfile.txt
- git commit -m 'my first commit'

You now have a Git repo with tracked files and an initial commit!

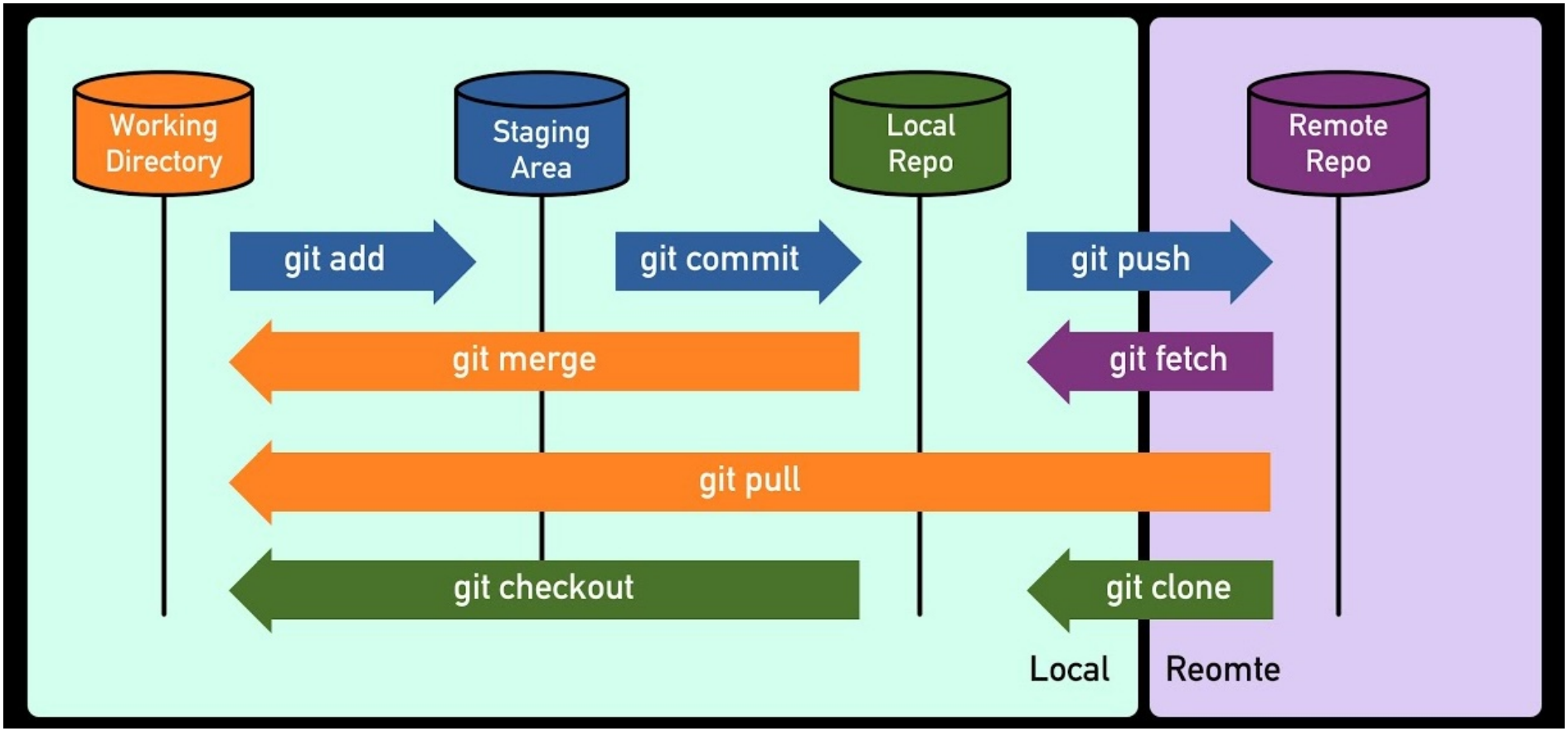
# USING GIT

## Cloning an Existing Repository

- git clone https://github.com/mynewproject



# THE GENERAL WORKFLOW



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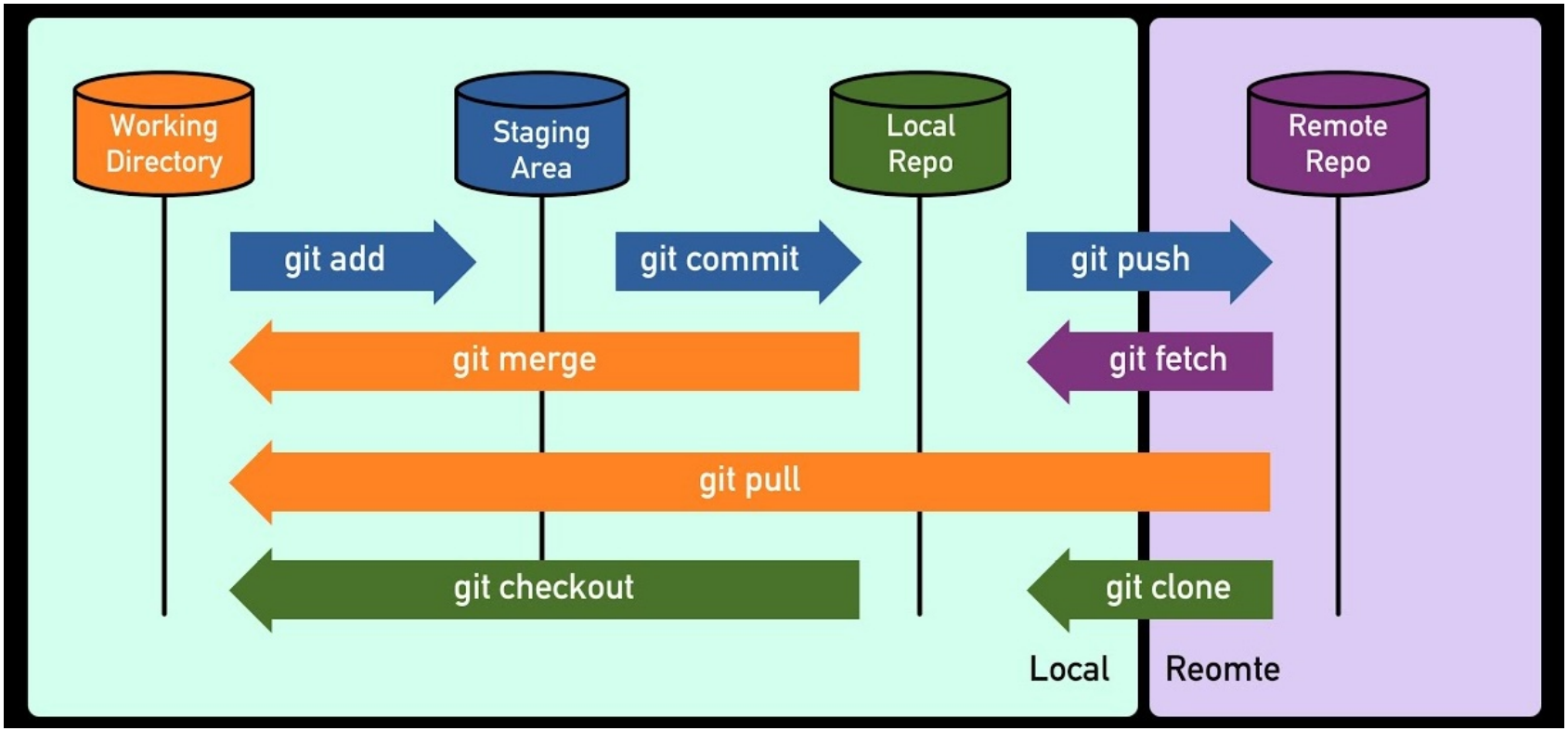
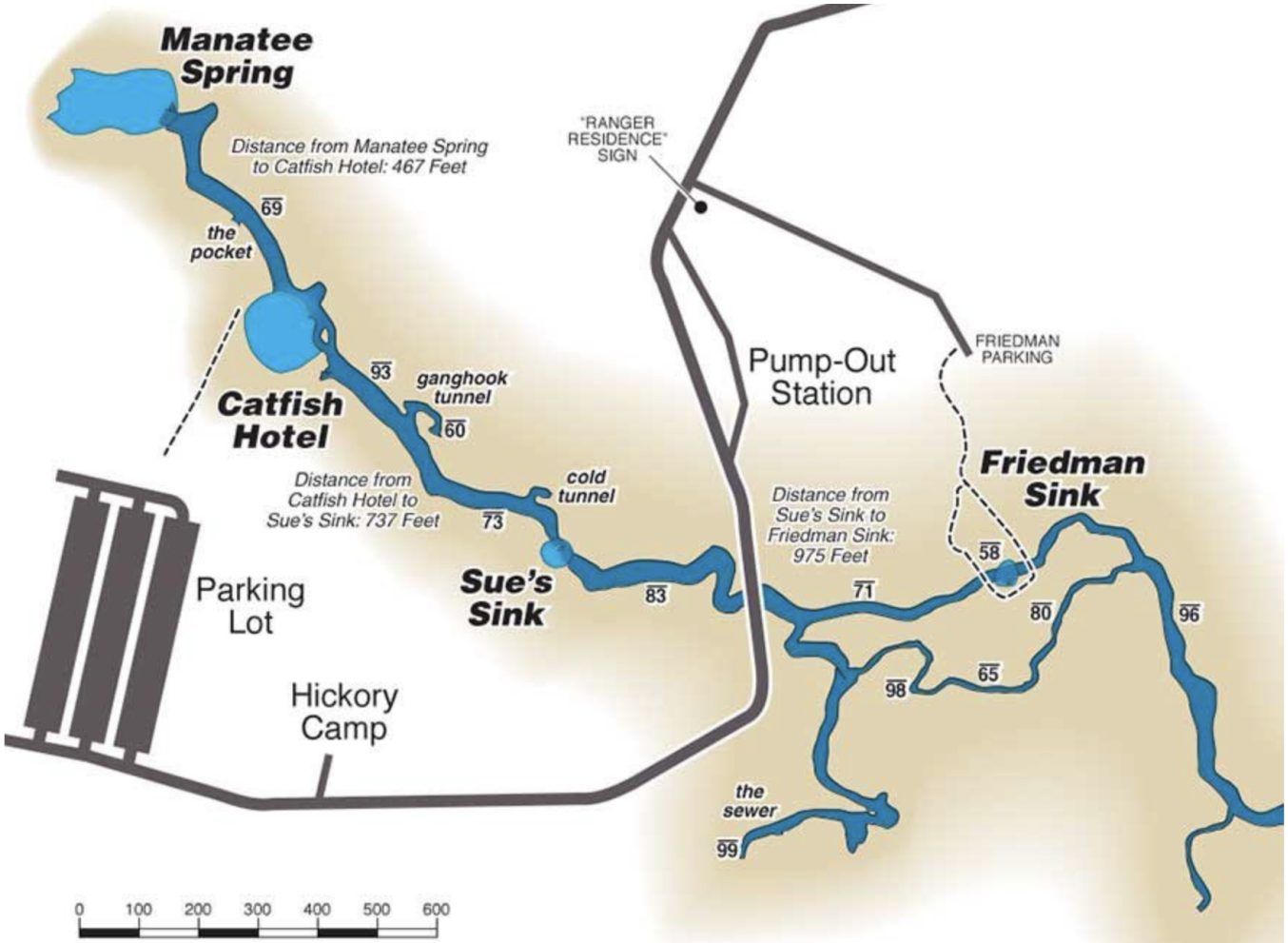


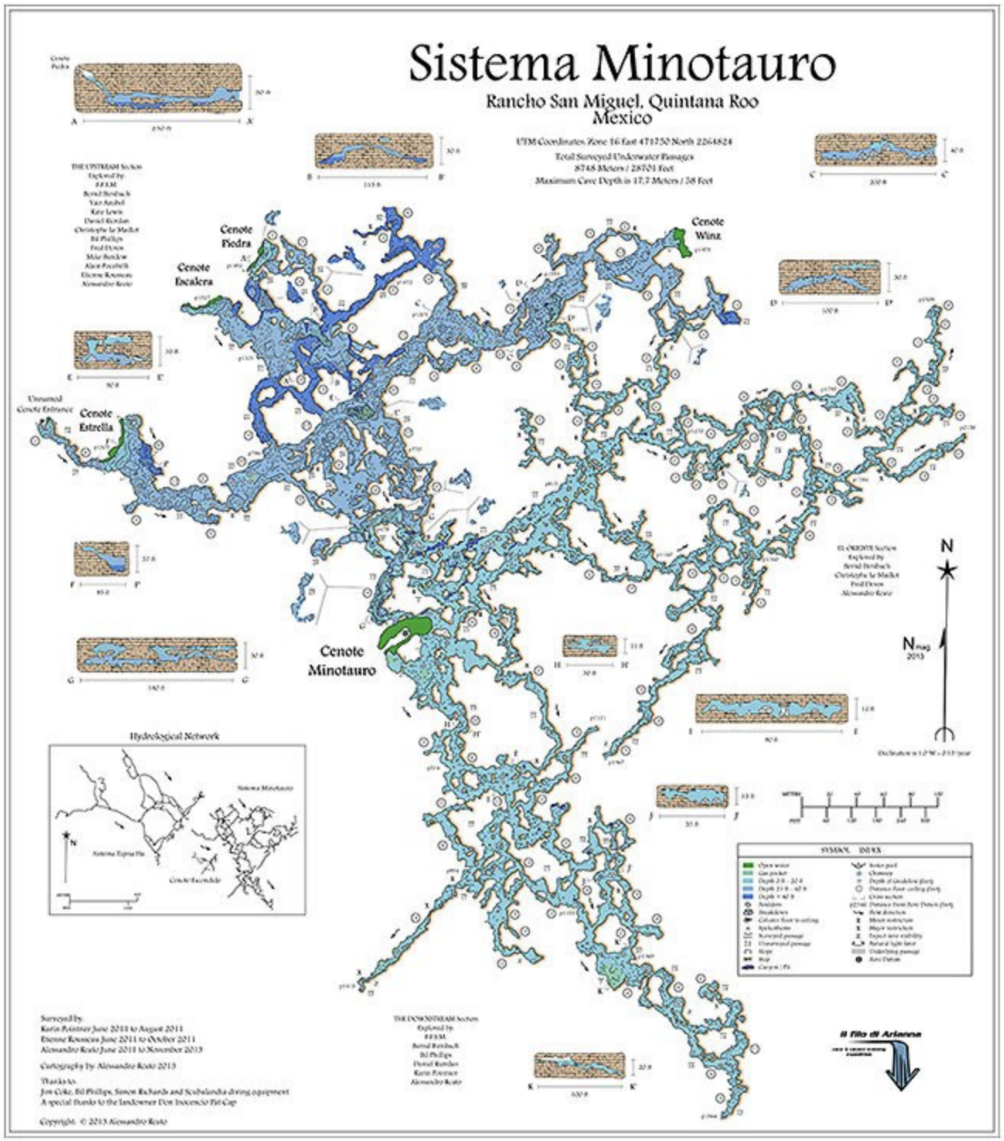

1. You modify files in your working tree.
2. You selectively stage just those changes you want to be part of your next commit, which adds **`only`** those changes to the staging area.
3. You do a commit, which takes the files as they are in the staging area and stores that snapshot permanently to your Git directory.

# WHEN DIVING INTO GIT...

# YOUR PATH CAN BE SIMPLE...



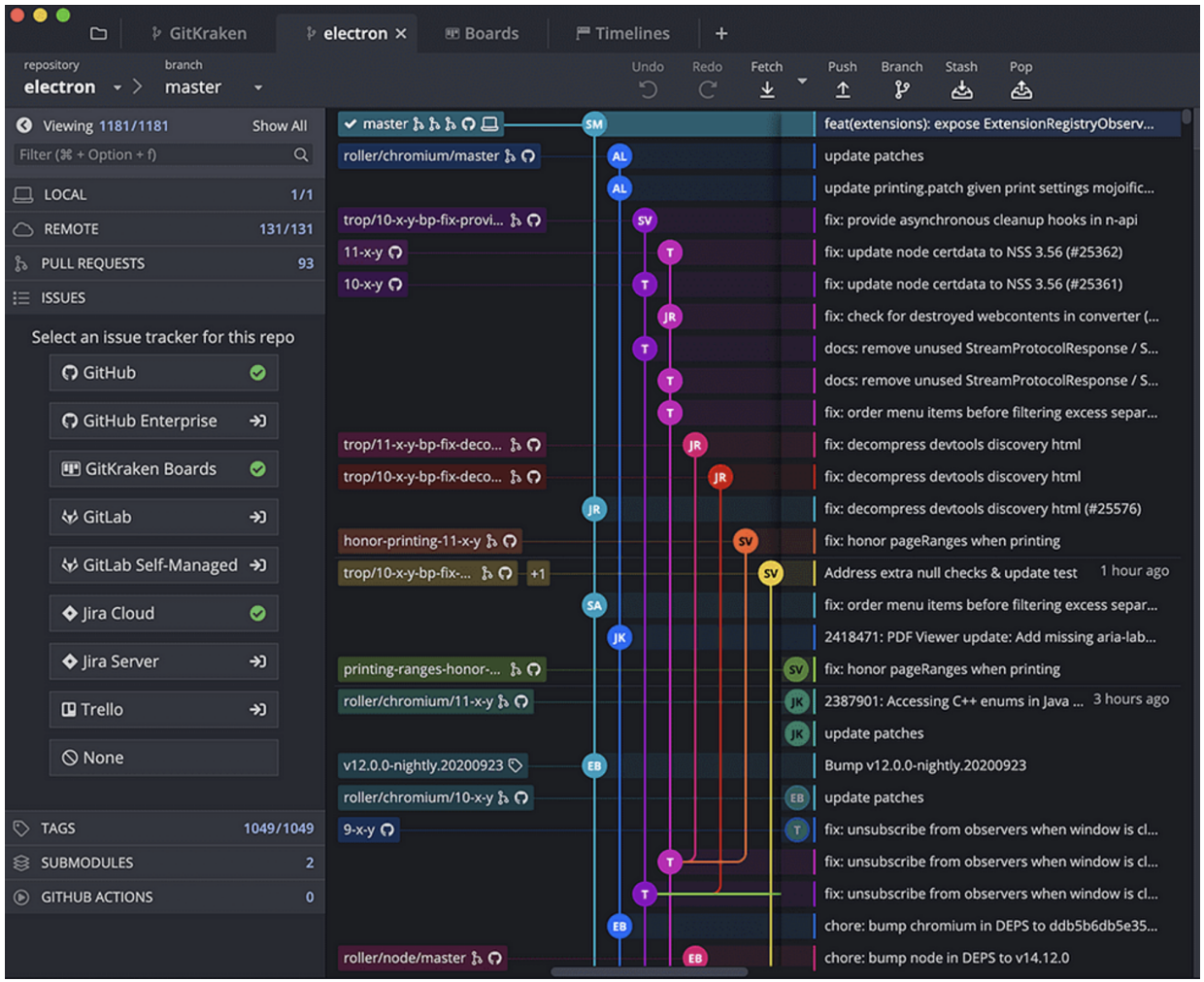
# OR AS COMPLICATED AS YOU LIKE.



# TOOLS FOR YOUR JOURNEY

GitHub, GitLab, and BitBucket for online servers

Gitkraken for your Desktop

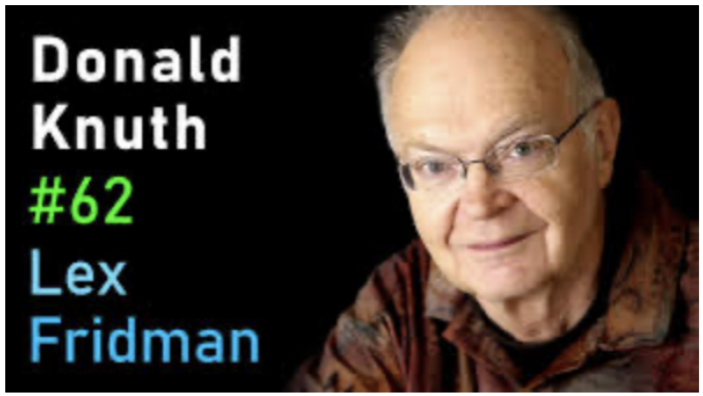


# HISTORY OF TEX AND LATEX

1977 Donald Knuth developed Tex– a computer language and program designed for use in typesetting; in particular, for typesetting math and other technical material.

LaTeX was written in the early 1980s by Leslie Lamport.

TeX handles the document layout, while LaTeX handles the content side for document processing.




# BONUS QUESTION 2!

What does TeX stand for?

# Bonus Question 2!

What does TeX stand for?

$\tau\epsilon\chi$

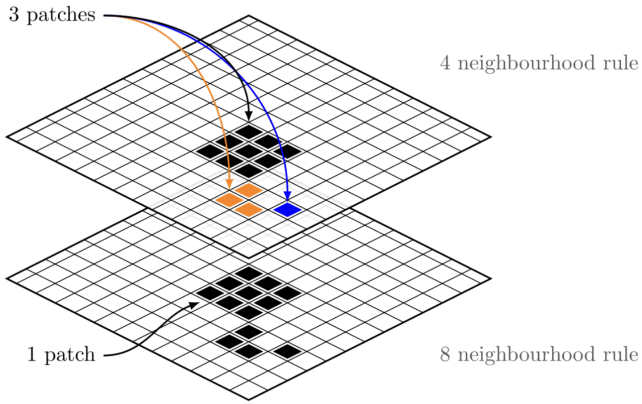
# How to Use LaTeX

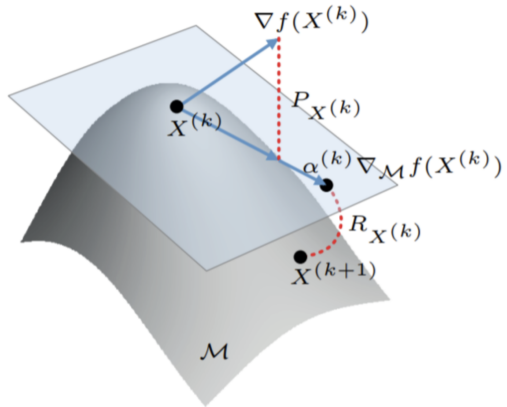
Installation

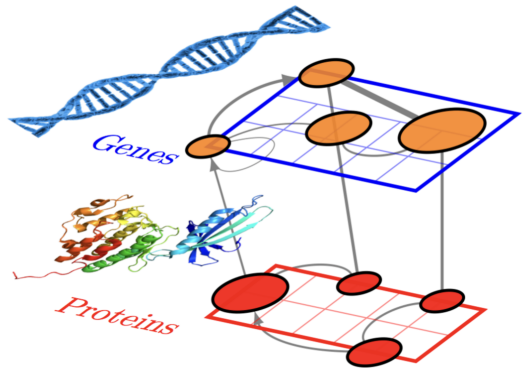
https://www.latex-project.org

# COOL STUFF IN LATEX

## Graphics with the Tikz package

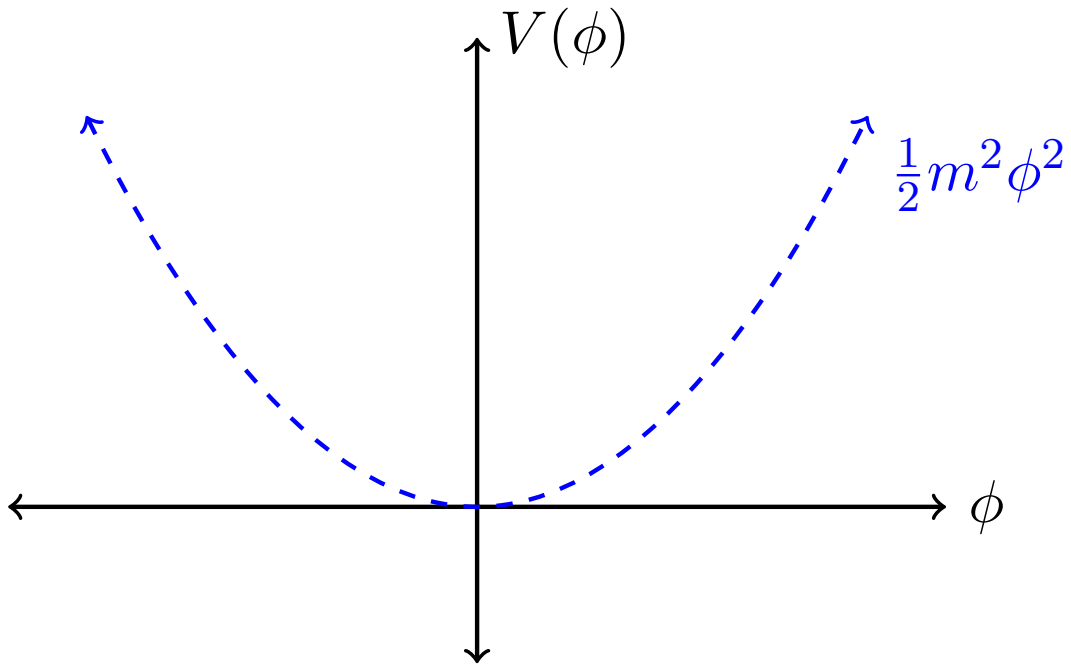



## More than just Typesetting!

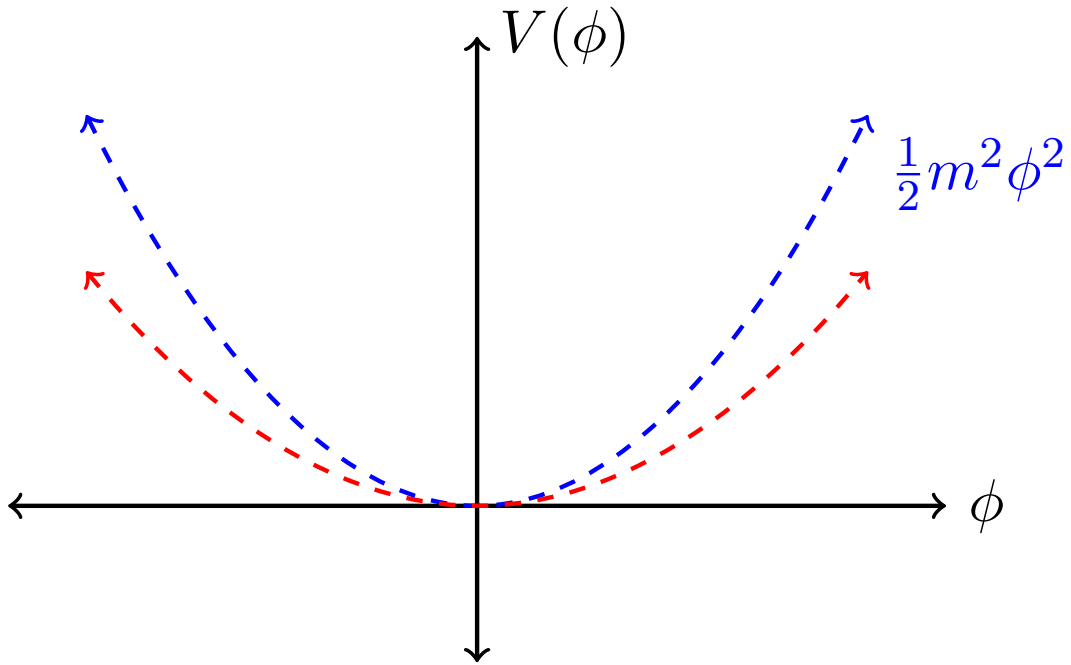
# One Example: Chaotic Inflation




$$\ddot{\phi} + 3H\dot{\phi} + \frac{\mathrm{d}V}{\mathrm{d}\phi} = 0$$

Something as simple as a parabola
can determine the fate of
the Universe.

# One Example: Chaotic Inflation

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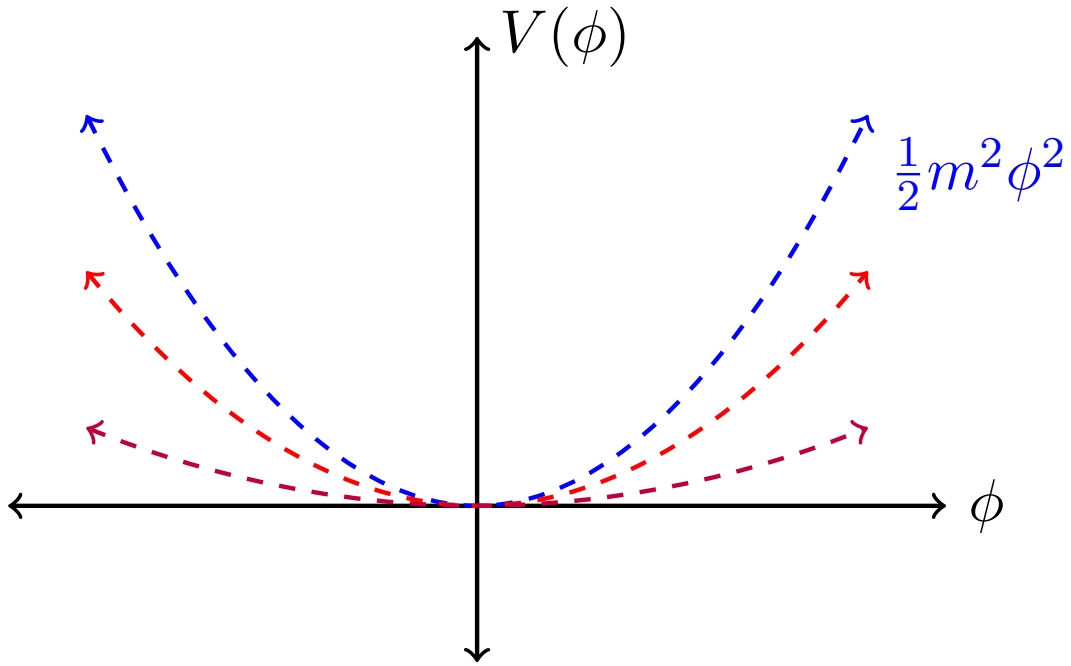


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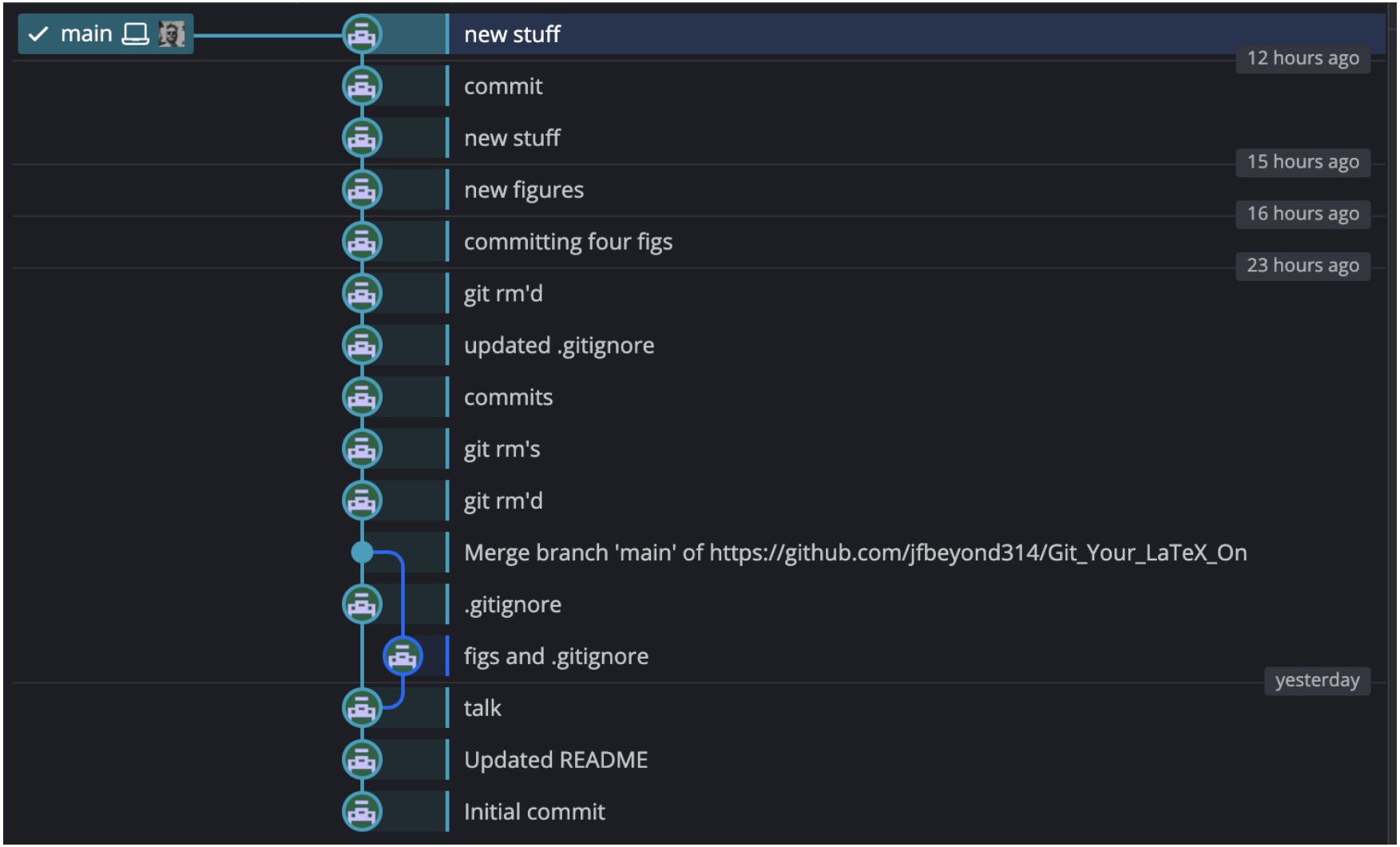
# THIS ENTIRE PRESENTATION WAS DONE USING GIT AND LATEX!



# Summary and Resources

Use git for all your version control needs
https://git-scm.com/book/en/v2

Use LaTeX for all your typesetting
https://latex-tutorial.com

1 Year Warranty of Service

# Thank You!