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Importance of Version Control and Documentation

Technomorph: Introduction to Robots and Robotics

Spandan Guragain (scientiac)

scientiac.space

Why Version Control?

▸ The Problem

- `project_final.zip`
- `project_final_final.zip`
- `project_final_v2.zip`
- `project_final_ACTUALLY_FINAL.zip`

Sound familiar? Version control solves this chaos!

What is Version Control?

▸ Key Benefits

- **Track changes** over time
- **Collaborate** with others seamlessly
- **Revert** to previous versions
- **Branch** for experiments
- **Merge** contributions safely

Think of it as a **time machine** for your code!

Enter Git

▸ Why Git?

- **Distributed** - Everyone has full history
- **Fast** - Optimized for performance
- **Flexible** - Supports any workflow
- **Industry Standard** - Used everywhere

```
git init
git add .
git commit -m "First commit"
```

Git Hosting Platforms

- GitHub
  - Most popular for individuals
  - Great for open source
  - Excellent CI/CD
  - Largest git hosting platform
- GitLab
  - If you are feeling extra adventurous
  - Most FOSS communities use this
  - Free private repos
  - Enterprise features

Others: Codeberg, SourceForge

Learning Git

▸ Resources to Get Started

- **Interactive:** learngitbranching.js.org
- **Official:** git-scm.com/doc
- **GitHub:** GitHub Skills courses
- **Practice:** Create your first repository!

Pro tip: Start with basic `add`, `commit`, `push`, `pull`

Documentation: Your Future Self Will Thank You

▸ Why Document?

- **Remember** what you did and why
- **Share** knowledge with others
- **Professional** portfolio building
- **Learning** reinforcement
- **Debugging** becomes easier

Documentation is **not** just for others—it's for **you**!

What to Document?

▸ Essential Documentation

- **README.md** - Project overview
- **Setup instructions** - How to run
- **API documentation** - How to use
- **Learning notes** - What you discovered
- **Decision logs** - Why you chose X over Y

Remember: Future you is a different person!

Documentation Tools

▸ Typst

- Modern markup language
- Beautiful PDFs
- Fast compilation
- Great for reports

▸ LaTeX

- Academic standard
- Precise formatting
- Rich ecosystem
- Publication ready

Others: Markdown, Obsidian, Notion, Sphinx

Typst vs LaTeX: Quick Comparison

Feature	Typst	LaTeX
Learning curve	Gentle	Steep
Compilation	Fast	Slow
Syntax	Modern	Verbose
Community	Growing	Massive
Use case	Modern docs	Academic papers

Recommendation: Try Typst first, learn LaTeX for academic work

Best Practices

▸ Version Control

- Commit **early** and **often**
- Write **meaningful** commit messages
- Use **branches** for features
- **Pull** before you **push**

Best Practices

- Documentation

  - Write as you **code**
  - Keep it **simple** and **clear**
  - Update when you **change** things
  - Include **examples**

Getting Started

▸ Action Items

1. Create a **GitHub account**
2. Install **Git** on your machine
3. Make your **first repository**
4. Write a **README.md**

- Try **Typst** or **LaTeX** for notes

Start small, be consistent!

See you soon!

⇧Find the templates for documeting your bootcamp journey here

This presentation is made with `typst`, you can find the source for it in the github repo linked from this QR.

spandan@scientiac.space

scientiac.space

@iac@polymaths.social