2nd 2017/18 GouTP @ SCEE

About:
- Version control with git
- Share your simulation code for reproductibility
- Open-source your code with git

Date: 9th of November 2017

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What’s a “GouTP”?

- **Internal monthly technical training session**
- Usually: *Thursday 3pm - 3:30pm*
- With coffee and sweets: we relax while training!

*Initiative of Quentin and Vincent in last January… Continued by Rémi, Rami, Muhammad and Lilian!*

**Not only @ SCEE?**

- 2nd and 3rd GouTP will be open to the *FAST team* → If success, next ones will be open to other research teams @ Supelec Rennes
Agenda for today [30 min]

1. Concept of version control with `git` (demo) [10 min]
2. Research collaboration on code or articles with `git` (examples, good practice) [5 min]
3. Why we should all share our simulation code online, and under an open-source licence (and even \LaTeX) [10 min]
4. Example of open-sourcing the MATLAB code and \LaTeX code from a recent article [5 min]
Why Git?

Version control …

- Very useful to:
- Never lose your code
- Keep track of progress, revert changes when needed
- Collaborate easily and asynchronously
- Git is used everywhere, easy to learn and powerful
- Free online hosting: Bitbucket, GitHub, GitLab etc…

Tutorial online!

- Try this please → Try.GitHub.io
Quick *live demo* of Git

Meta demo ?

- I store all my slides on GitHub…
- … Including the source code for this one
- Let see together! → *live demo* of local use of `git`
- basic commands for a use in a terminal
- or in a graphical interface (e.g., inside your IDE)

→ *live demo* of the online repository (on GitHub)
Research collaboration with git

**Why ?**

- Easiest way to collaborate on code or article
- No email, no painful Dropbox/Drive synchronization …
- Full control on your files’ history and the synchronization!

**How ?**

1. Create a *(private)* repository that your colleagues can access
2. Where? *Example*: Bitbucket, GitHub (with student pack), GForge @ Inria, OverLeaf (for \LaTeX)…
3. Start collaborating with no sweat!
Share your simulation code online

Why?
- Everyone can (hopefully) reproduce your code and results
- Show to the world that you do serious reproducible science !!

How?
1. Clean up your source code, and add a few comments
2. Write a small README.md file to explain: how to run your code, for which article it was used, conditions of usage etc
3. Maybe add an example, or figures / screenshots
4. Ex: Bitbucket.org/SCEE_IETR/Testbed_Monitor for an internal tool, or Bitbucket.org/SCEE_IETR/RL_Slotted_IoT_Networks for an article
Join the open-source community!

- **ChooseALicense.com** to pick a license suiting your needs
- By default HAL uses a **Creative Commons** license (with various flavors). Example: [HAL.Inria.fr/HAL-01575419](HAL.Inria.fr/HAL-01575419)
- But arXiv does not specify the license (on document and source) : that’s bad ! No one can use your code if you do not specify any copyright or usage conditions…

**My advice ?**

- I suggest the **MIT License** for simulation code (short & well-known) and **Creative Commons** for documents and **\LaTeX**
Example of sharing on Bitbucket the simulation code from an article

It takes 10 minutes:

1. Clean up the MATLAB files
2. Add a few comments in the tricky parts
3. Add a header to the files stating the copyright
4. Choose a license and add a LICENSE file
5. Write a README.md file in the folder
6. Create the repository, git add all the files
7. git push, check the result, and relax!

→ Bitbucket.org/SCEE_IETR/RL_Slotted_IoT_Networks
And open-sourcing the \LaTeX code?

*Note: this is not against the copyright policies of conferences/journals if you do not share the PDF…*

- Not so useful for articles with basic templates, but why not?
- Can help your colleagues if you use a nice template for posters or slides
- Can also help when writing your thesis, you can copy-paste equations from your colleagues’ articles instead of re-writing…
- Example:
  
  Bitbucket.org/LBesson/Multi-Armed-Bandit-Learning-in-IoT-Networks
Conclusion

- I hope you got an overview of how to use git
- Why it can be a good idea to share your simulation code
- And why choosing an open-source license is smart!

Your mission, if you accept it...

- **Padawan level:** Train yourself on git → Try.GitHub.io
- **Jedi level:** Release some simulation code online!
- **Master level:** Release all your code (and \LaTeX) online!!

*Thanks for joining! Contact us if you want to do a GouTP!*