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

- **Who:** Lilian Besson
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

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 the LaTeX code!) [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](https://Bitbucket.org/SCEE_IETR/Testbed_Monitor) for an internal tool, or [Bitbucket.org/SCEE_IETR/RL_Slotted_IoT_Networks](https://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
- ⚠️ 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...
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!