2$^{\text{nd}}$ 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   <mark>[30 min]</mark>

1. Concept of version control with `git` (demo)   <mark>[10 min]</mark>

2. Research collaboration on code or articles with `git` (examples, good practice)   <mark>[5 min]</mark>

3. Why we should all share our simulation code online, and under an open-source licence (and even the LaTeX code!)   <mark>[10 min]</mark>

4. Example of open-sourcing the MATLAB code and LaTeX code from a recent article   <mark>[5 min]</mark>

Why Git ?

Version control 🔧 ...

- Veru useful to:
  - Never lose your code 😭
  - Keep track of progress, revert changes when needed ⬅BACK
  - 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 !

  $\longrightarrow$ *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)

  $\longrightarrow$ *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

- ⚠️ 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-Learning-Helps

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 $\longrightarrow$ 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!*