

# 2nd GouTP @ SCEE

Open-sourcing your code with git

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# 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 [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  $\text{\LaTeX}$ ) [10 min]
- ④ Example of open-sourcing the MATLAB code and  $\text{\LaTeX}$  code from a recent article [5 min]

# Why Git ?

## Version control ...

- Veru 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](https://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  $\text{\LaTeX}$ )...
- 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\\_Network](https://bitbucket.org/SCEE_IETR/RL_Slotted_IoT_Network) for an article



# Join the open-source community !

- [ChooseALicense.com](http://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](http://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  $\text{\LaTeX}$

## 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](https://bitbucket.org/SCEE_IETR/RL_Slotted_IoT_Networks)

## And open-sourcing the L<sup>A</sup>T<sub>E</sub>X 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-Learn](https://bitbucket.org/LBesson/Multi-Armed-Bandit-Learn)

# 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](https://try.github.io)
- *Jedi level*: Release some simulation code online !
- *Master level*: Release *all* your code (and  $\text{\LaTeX}$ ) online !!

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