



Arcanite

S4S Workshop

Outils numériques : ce qu'on
aurait aimé savoir



Qui sommes- nous ?



Anne Donnet

EPFL MSc IN '23

Ingénieure Logiciel



Naomi Naested

EPFL MSc Ing PH '19

Ingénieure Data & IA



Lionel Martin

EPFL MSc SC '12 & Ph.D. '18

Co-fondateur, Associé



Nos Buts

BUT PRINCIPAUX

- Partage d'expérience
- Encourager l'autoformation
- Partage de ressources et références

CHOIX DES OUTILS

- Utiles pour toutes les sections
- Pas enseignés formellement à l'EPFL



Rédaction de rapports

QUAND ?

- Rapports de projets de cours, de labo
- Rapports de projets de Bachelor et Master
- Formulaires, posters, présentations, etc.

COMMENT ?

- Un outil de rédaction : LaTeX
- Une plateforme pour la collaboration : Overleaf

POURQUOI ?

- Des outils adaptés aux besoins et contenus
- Gagner du temps grâce à des modèles

Rédaction de rapports avec L^AT_EX

```
\documentclass{article} % Starts an article
\usepackage{amsmath} % Imports amsmath
\title{\LaTeX} % Title

\begin{document} % Begins a document
  \maketitle
  \LaTeX{} is a document preparation system
for
the \TeX{} typesetting program. It offers
programmable desktop publishing features and
extensive facilities for automating most
aspects of typesetting and desktop
publishing,
including numbering and cross-referencing,
tables and figures, page layout,
bibliographies, and much more. \LaTeX{} was
originally written in 1984 by Leslie Lamport
and has become the dominant method for using
\TeX; few people write in plain \TeX{}
anymore.
The current version is \LaTeXe.

% This is a comment, not shown in final
output.
% The following shows typesetting power of
LaTeX:
\begin{align}
E_0 &= mc^2 \\
E &= \frac{mc^2}{\sqrt{1-\frac{v^2}{c^2}}}
\end{align}
\end{document}
```

L^AT_EX

L^AT_EX is a document preparation system for the T_EX typesetting program. It offers programmable desktop publishing features and extensive facilities for automating most aspects of typesetting and desktop publishing, including numbering and cross-referencing, tables and figures, page layout, bibliographies, and much more. L^AT_EX was originally written in 1984 by Leslie Lamport and has become the dominant method for using T_EX; few people write in plain T_EX anymore. The current version is L^AT_EX 2_ε.

$$E_0 = mc^2 \tag{1}$$

$$E = \frac{mc^2}{\sqrt{1 - \frac{v^2}{c^2}}} \tag{2}$$

Rédaction de rapports avec L^AT_EX

Rédaction à plusieurs : Overleaf

The screenshot displays the Overleaf online LaTeX editor interface. The top navigation bar includes a 'Menu' button, a home icon, an 'Upgrade' button, and a title 'Master Thesis Report'. On the right side of the top bar are buttons for 'Review', 'Share', 'Submit', 'History', 'Layout', and 'Chat'. Below this is a secondary toolbar with icons for file management, a 'Code Editor' tab (selected over 'Visual Editor'), undo/redo, text formatting (Normal text, Bold, Italic), a search icon, a 'Recompile' button, and a download icon. The left sidebar shows a file tree with folders 'assets', 'chapters', and 'annexes', and a subfolder 'ch3_designProcess'. The file 'ch0_introduction.tex' is selected and highlighted in green. Other files listed include 'ch1_litteratureReview.tex', 'ch2_context.tex', 'ch3_designProcess.tex', 'ch4_finalDesign.tex', 'ch5_discussion.tex', 'ch100_conclusion.tex', 'bibliography.bib', 'content.tex', 'main.tex', and 'title_variables.tex'. The main editor area shows the LaTeX source code for 'ch0_introduction.tex' with line numbers 1 through 6. The code includes a chapter command, a table of contents entry, and a paragraph of text discussing patents. The right pane shows the rendered PDF output, which has the title 'Introduction' and the corresponding text from the source code.

```
1 \chapter*{Introduction}
2 \addcontentsline{toc}{chapter}{Introduction}
3 %The introduction is a longer writeup
  that gently eases the reader into your
  thesis [1]. Use the first
4 %paragraph to discuss the setting.
5 The number of yearly granted patents by
  the US Patent Office increased by half
  since 2010 \cite{upoStats}, and more
  than doubled for the European Patent
  Office \cite{epoStats} with respective
  totals of 388'900 and 133'715 in 2020.
6 Each of these patents gives its owner
  the right to prevent others from
  making, using, or selling the described
  invention in the countries covered by
  the patent. Making, using, or selling a
```

Introduction

The number of yearly granted patents by the US Patent Office increased by half since 2010 [PP], and more than doubled for the European Patent Office [EPO] with respective totals of 388'900 and 133'715 in 2020. Each of these patents gives its owner the right to prevent others from making, using, or selling the described invention in the countries covered by the patent. Making, using, or selling a patented invention without a license is called infringement, and infringement lawsuits tend to be very costly in time, energy, and money. In this context, patents represent both potential commercial advantages and risks, especially for companies investing in research and development. Each time a new machine, process, design, or anything new is developed, the question rises of



Démo LaTeX sur Overleaf



Questions ?



Découverte du Terminal

QUAND ?

- | Accès à des machines distantes
- | Automatiser des actions sur des fichiers

COMMENT ?

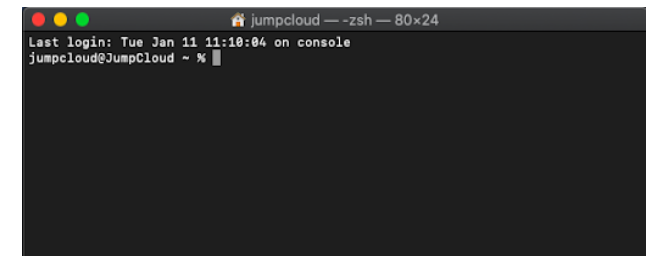
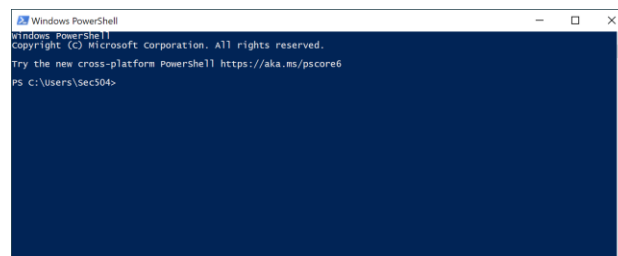
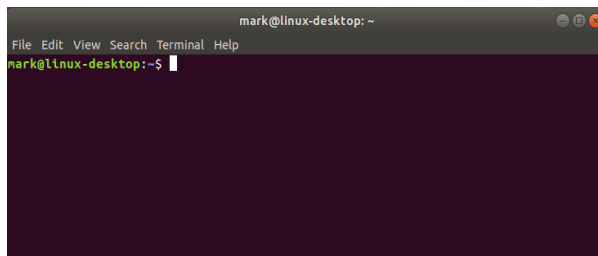
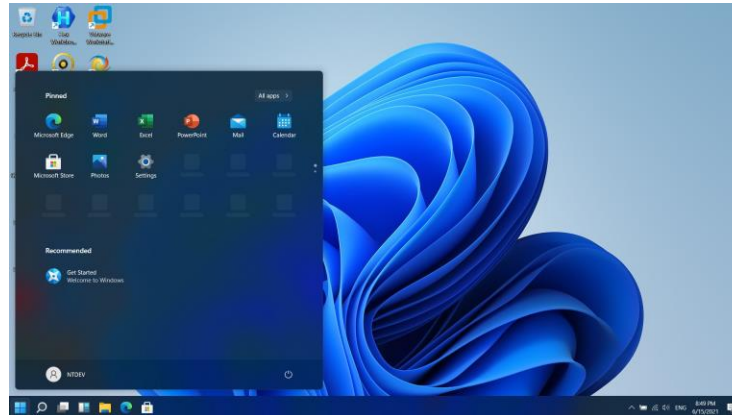
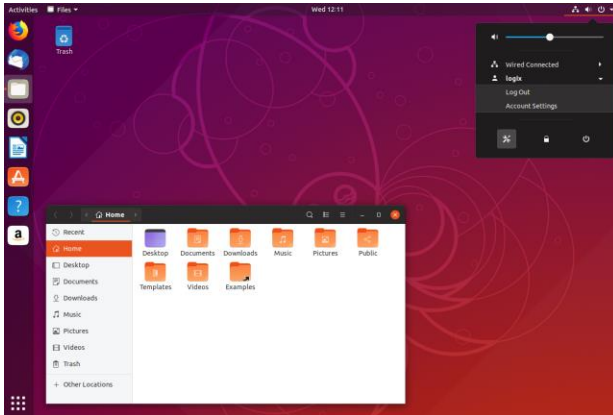
- | Ligne de commande (CLI) ou terminal

POURQUOI ?

- | Efficacité
- | Plus léger qu'une interface graphique (GUI)
- | Parfois la seule manière

Découverte du Terminal : GUI vs CLI

3 grandes familles de systèmes d'exploitation





Démo Terminal et commandes



Questions ?





Systeme de Contrôle de Version

QUAND ?

| Tous les projets incluant de la programmation

COMMENT ?

| Git

POURQUOI ?

| Meilleure gestion de projets

| Obligatoire pour certains projets

| Utilisé couramment dans l'industrie

SCV : Principes de Git

HISTORIQUE DES CHANGEMENTS

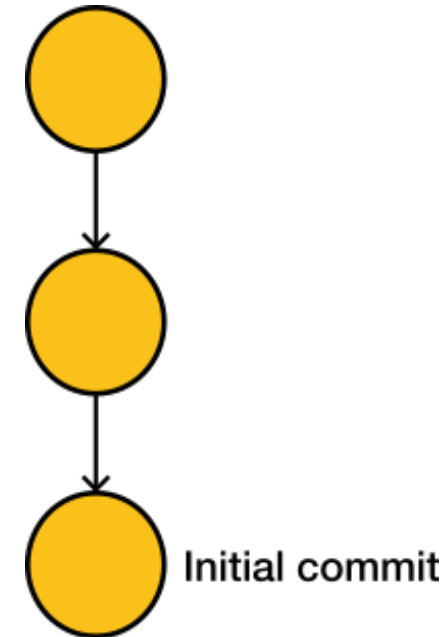
- | Quand/Pourquoi/Par qui
- | Revenir à une version antérieure
- | Sauvegarde
- | Historique "En graphe"

GESTION DES VERSIONS

- | Travail collaboratif

COPIES LOCALES ET DISTANTES

- | Le concept de "remote"



SCV : Outils de Git

GIT

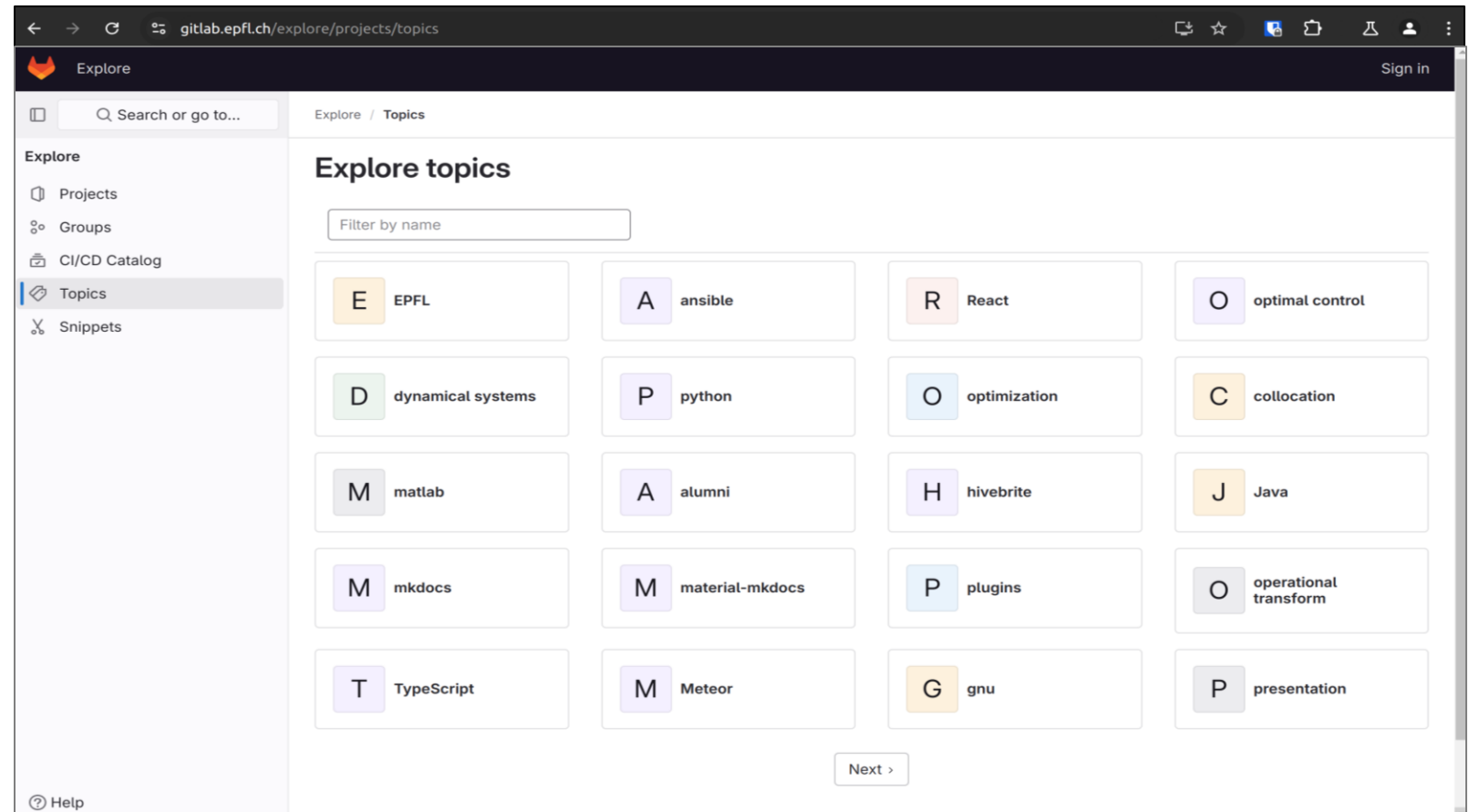
| Logiciel

GITLAB / GITHUB

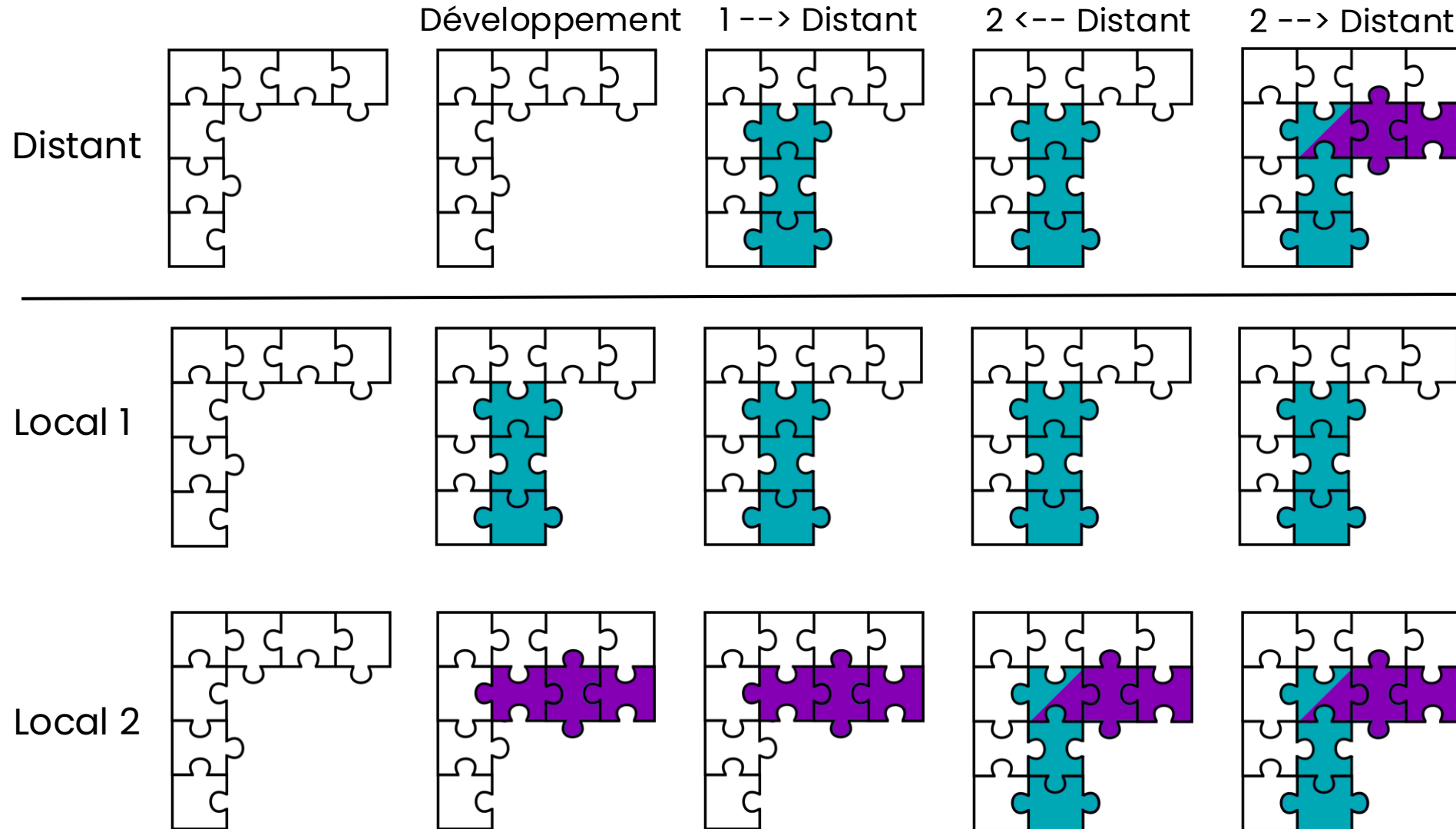
| Services cloud

GITLAB.EPFL.CH

| Hébergé par l'EPFL



SCV : Déroulement de Git



SCV : Utilisation de Git

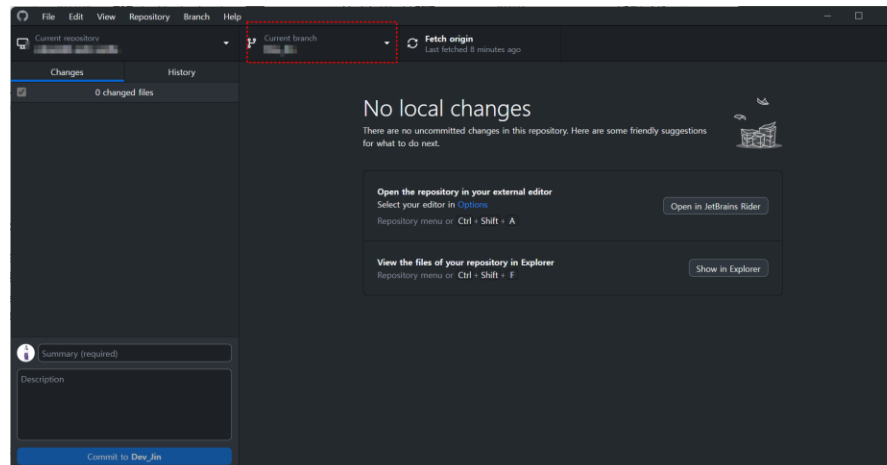
DE NOMBREUSES POSSIBILITÉS

CLI (Command Line Interface)

Interface Web

Git Desktop

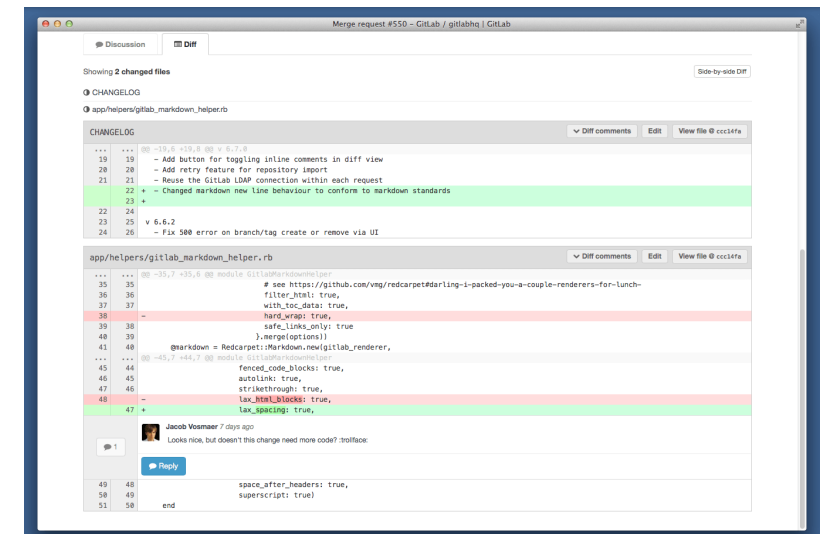
...



```
ben@marcy:~/Projects/github/rpi-distro/python-gpiozero {new-shiny-feature} $ git
status
On branch new-shiny-feature
Changes not staged for commit:
  (use "git add <file>..." to update what will be committed)
  (use "git checkout -- <file>..." to discard changes in working directory)

        modified:   setup.py

no changes added to commit (use "git add" and/or "git commit -a")
ben@marcy:~/Projects/github/rpi-distro/python-gpiozero {new-shiny-feature} $ git
branch
1.3.2-updates
docs-updates
loadaverage
master
* new-shiny-feature
  pinout-cli-tool
  rgm3-pigpio-pin-factory
  statusboard
  statusboard2
ben@marcy:~/Projects/github/rpi-distro/python-gpiozero {new-shiny-feature} $ git
commit -am "Add new shiny feature, close #980"
[new-shiny-feature cb793d2] Add new shiny feature, close #980
1 file changed, 1 insertion(+), 1 deletion(-)
ben@marcy:~/Projects/github/rpi-distro/python-gpiozero {new-shiny-feature} $
```





Questions ?





Conclusion

RAPPEL DE NOS BUTS

- Partage d'expérience
- Encourager l'autoformation
- Partage de ressources et références

RESSOURCES ET RÉFÉRENCES

- Rassemblées sur : <https://go.arcanite.ch/s4s/>
- Tout le contenu d'aujourd'hui
- Des ressources supplémentaires
- Des informations pour aller plus loin



Arcanite, c'est quoi ?

ARCANITE SOLUTIONS

Entreprise de services informatiques

Fondée par 6 anciens de l'EPFL

Actuellement 46 employé·e·s

TROIS DOMAINES METIER

Infrastructure et DevOps

Développement Web


Data et IA

OPPORTUNITÉS

Stages et jobs étudiants

Afterworks & Teambuilding





Prochaine date :
Forum EPFL les 10 et 11 octobre

Ressources :
<https://go.arcanite.ch/s4s/>

Suivez-nous sur les réseaux !



[company/arcanite-ch](https://www.linkedin.com/company/arcanite-ch)



[arcanite_ch](https://twitter.com/arcanite_ch)



[arcanite_ch](https://www.instagram.com/arcanite_ch)

