MOOC Machine learning in python with scikit-learn

UN COURS SUR SCIKIT-LEARN PAR SCIKIT-LEARN

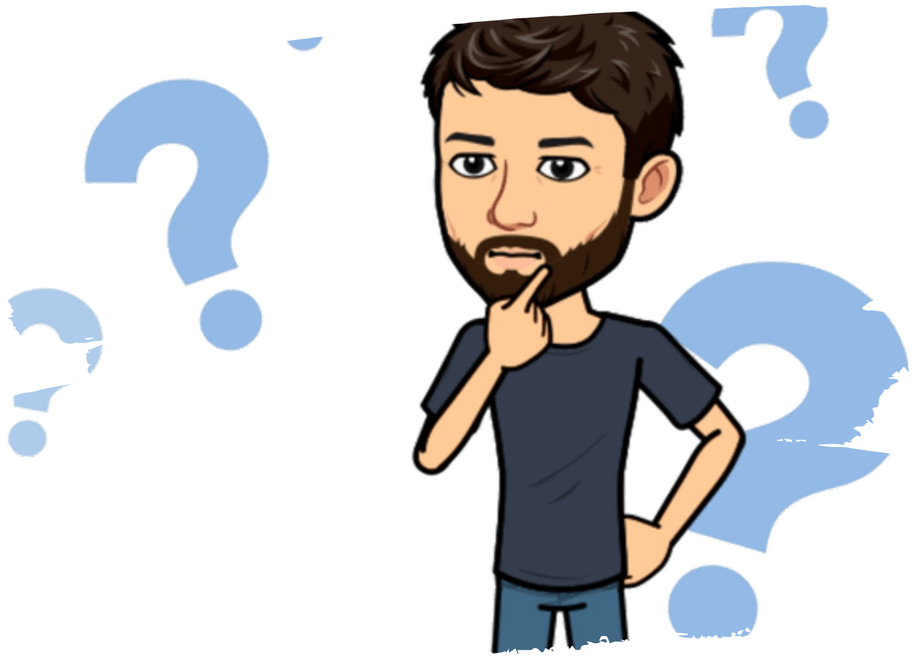
QUELQUES MOTS SUR MOI

Doctorat en physique des particules

enseignant les sciences depuis 2012

"core" contributeur à scikit-learn

2 ans en charge du MOOC "Machine learning in python with scikit-learn"



@ArturoAmorQ

UN BREF TOPO

- 📌 gratuit
- 📌 vous recevez un badge
- 📌 rien à installer
- 📌 maintenu par des développeurs de scikit-learn
- 📌 garantie de tourner sur la dernière version

LA VISION DU MOOC

- accessible avec des exigences limitées (connaissance de base de Python, anglais)
- intuitions sans entrer dans les mathématiques
- licence CC-BY : rendre le matériel réutilisable autant que possible
- matériel réutilisable dans différents contextes : tutoriels, enseignement en direct (Inria Academy, cours universitaires)

EN QUOI ÇA CONSISTE?

- 7 modules + 1 module d'introduction
- 15 leçons vidéo
- 70 cahiers + 21 exercises
- 26 quizzes + 7 wrap-up quizzes

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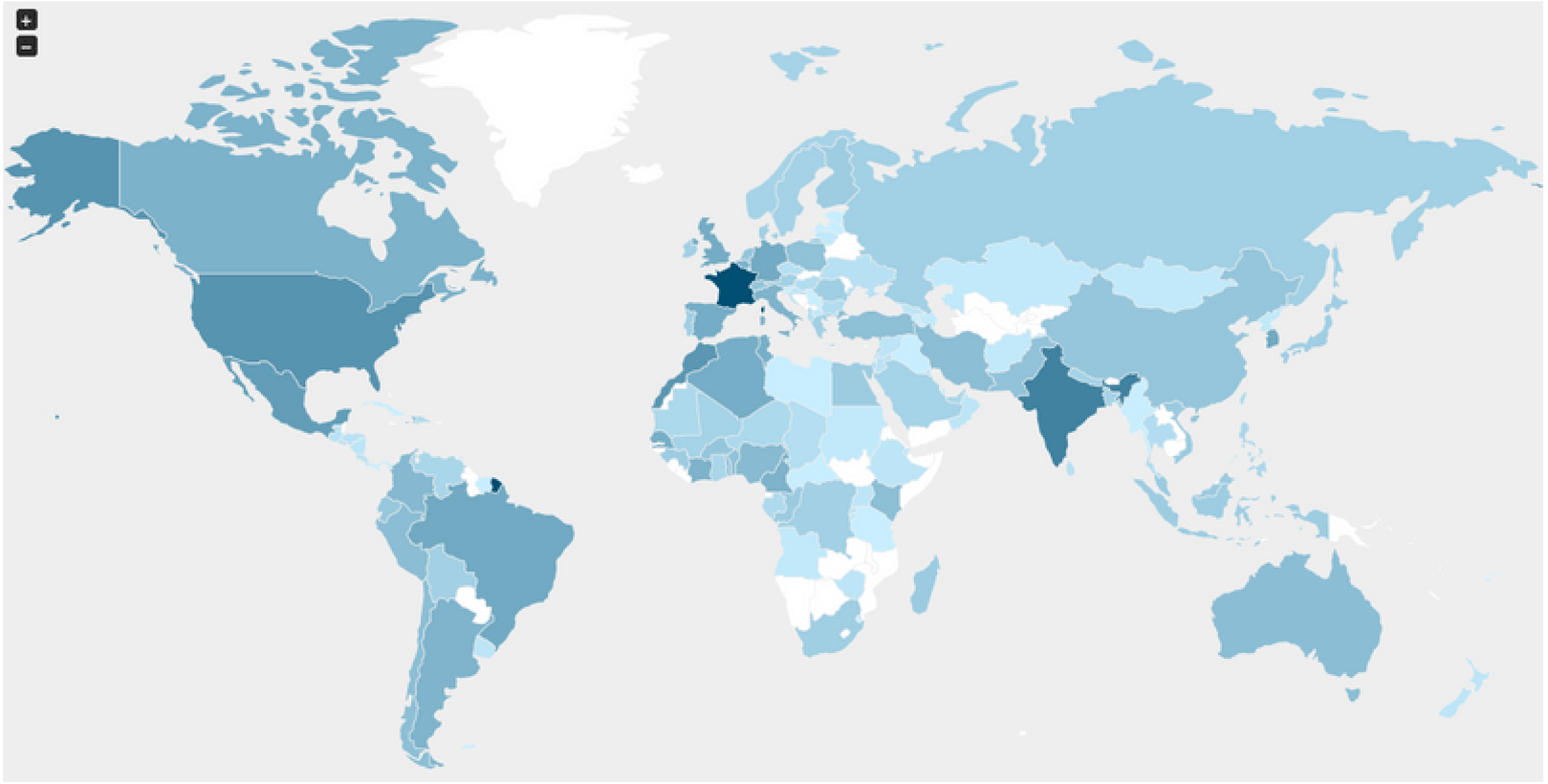
3 sessions (durée entre 2-3 mois)

~10k souscriptions/session

~140 pays



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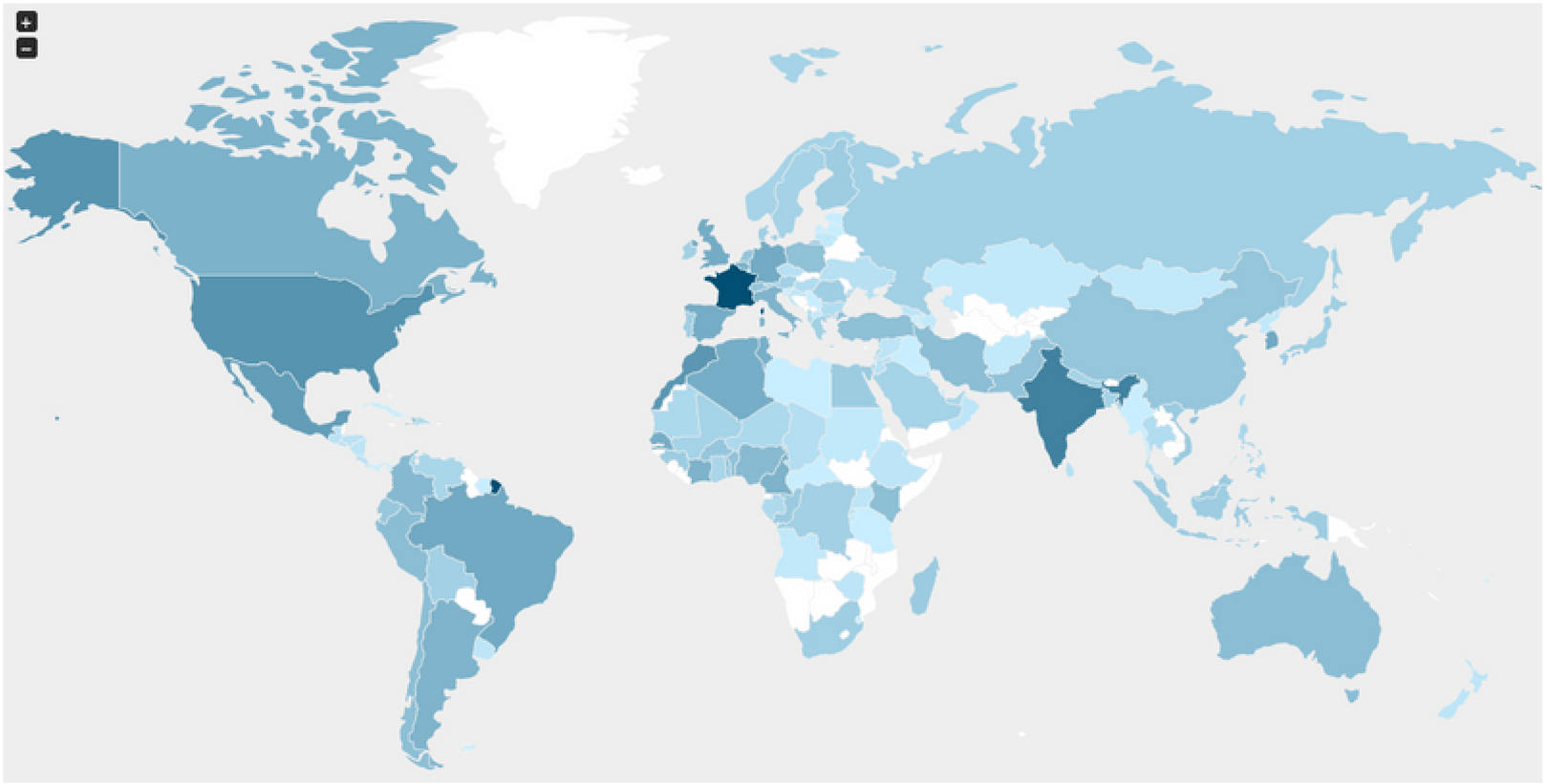
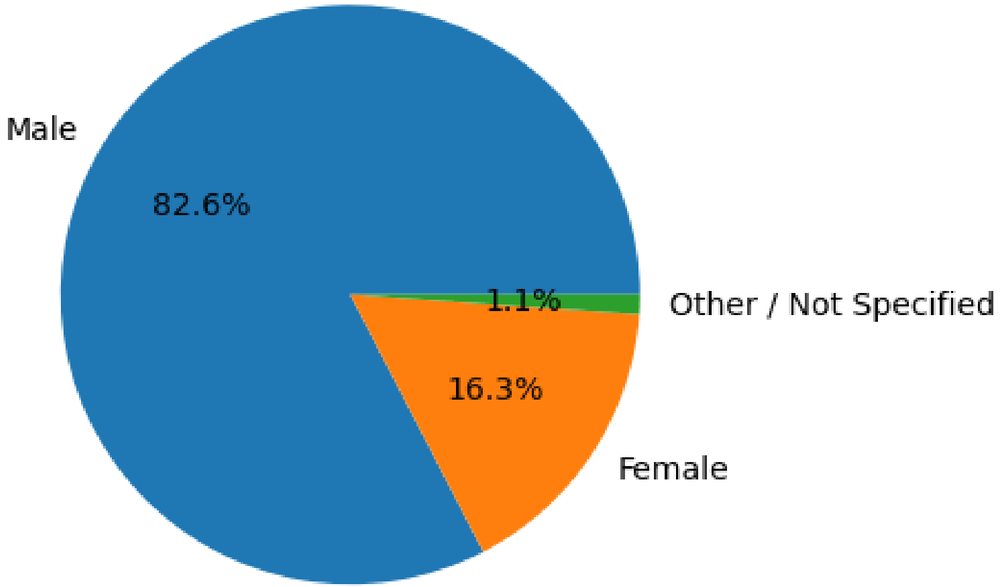
Principalement pays francophones

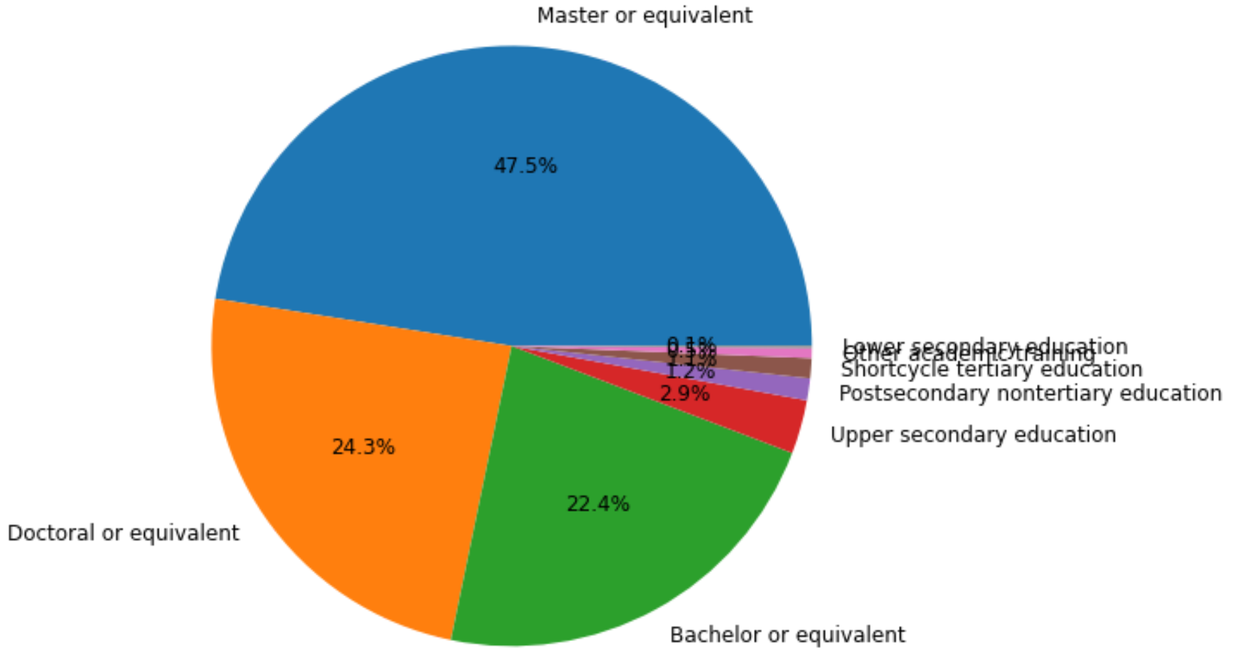


Connaître notre public

Public plutôt masculin

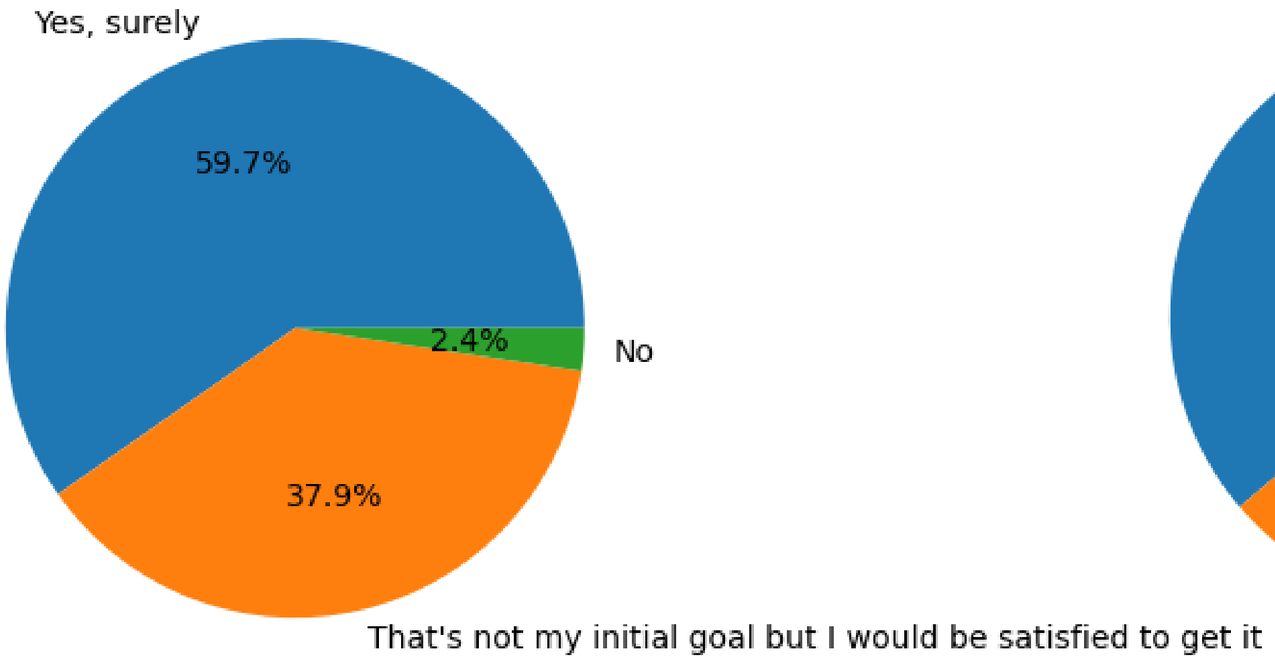


La plupart ayant fait un Master

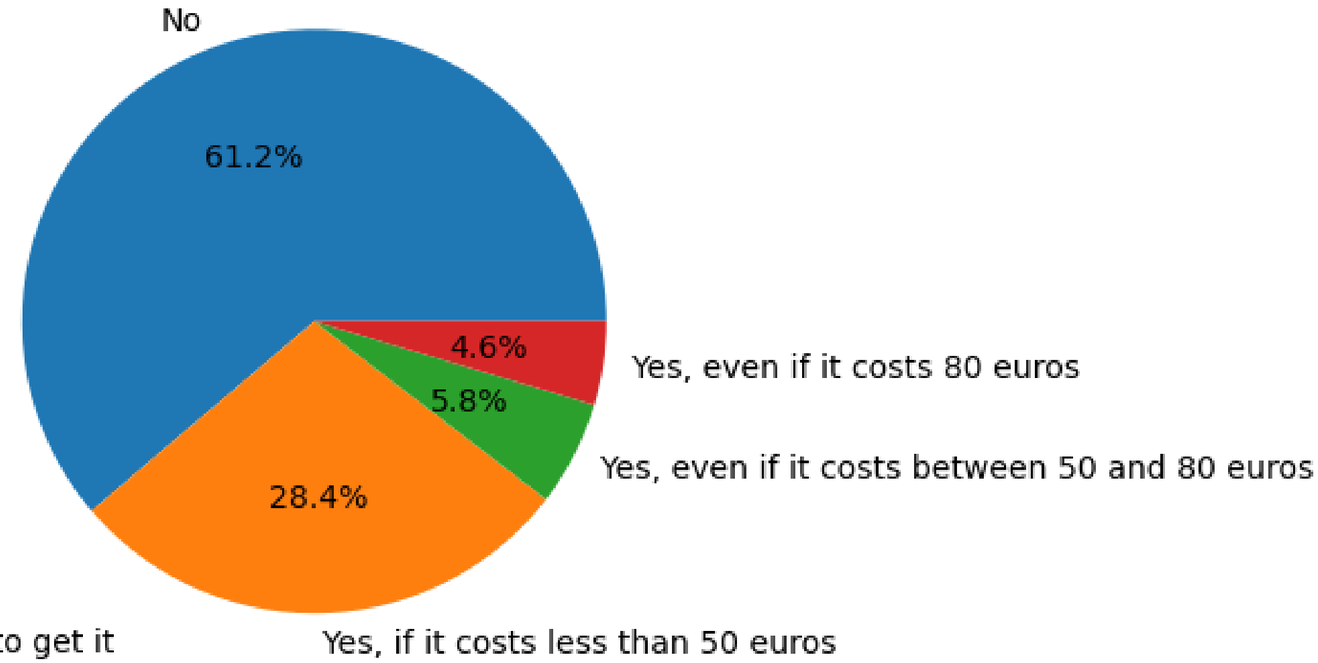


Connaître notre public

Votre objectif est d'obtenir le badge (gratuitement) ?

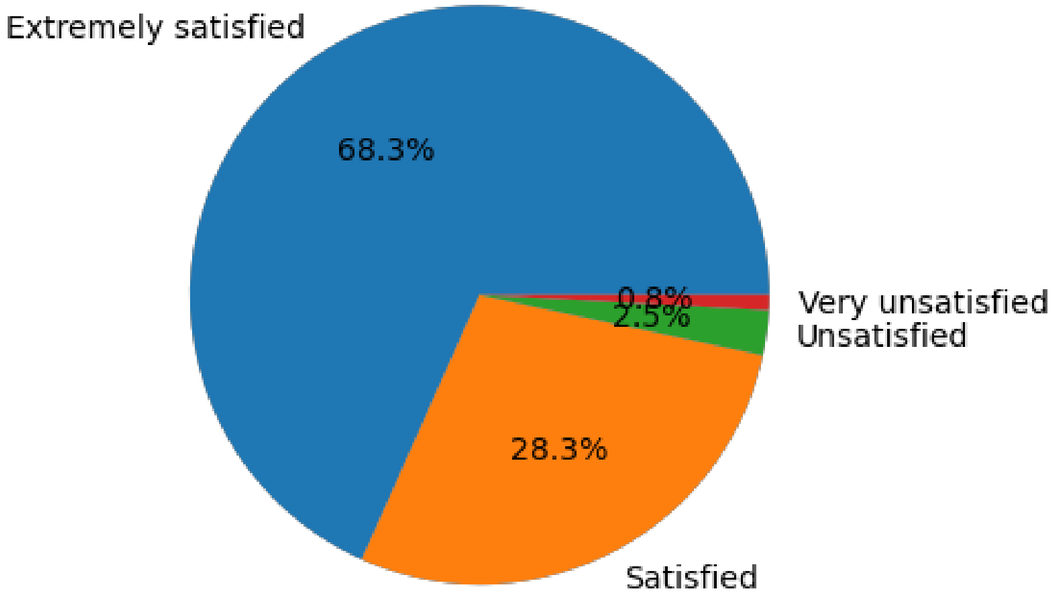


Seriez-vous prêts à payer pour cela ?

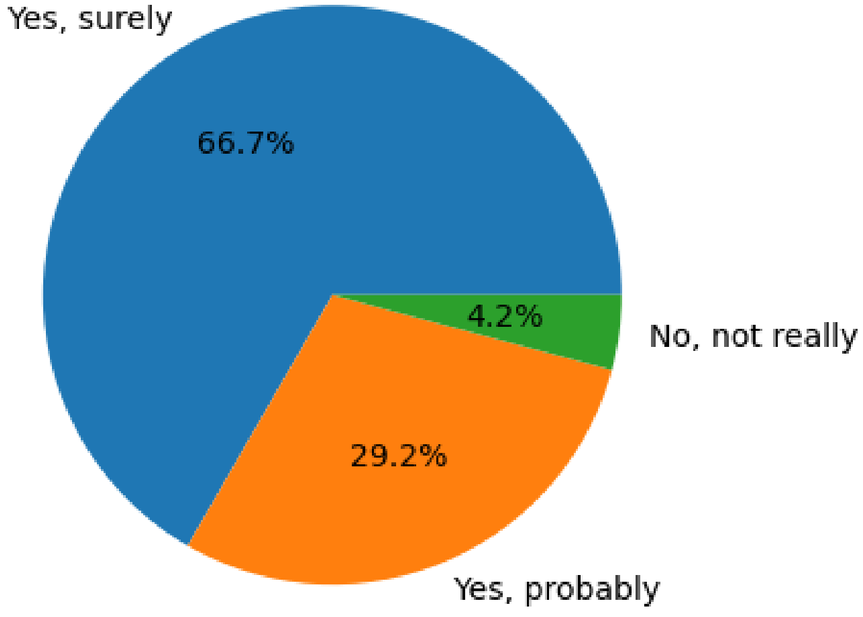


Connaître notre public

Quel est votre degré de satisfaction sur ce MOOC ?



Serez-vous en mesure de pratiquer ou d'appliquer ce que vous avez appris ?

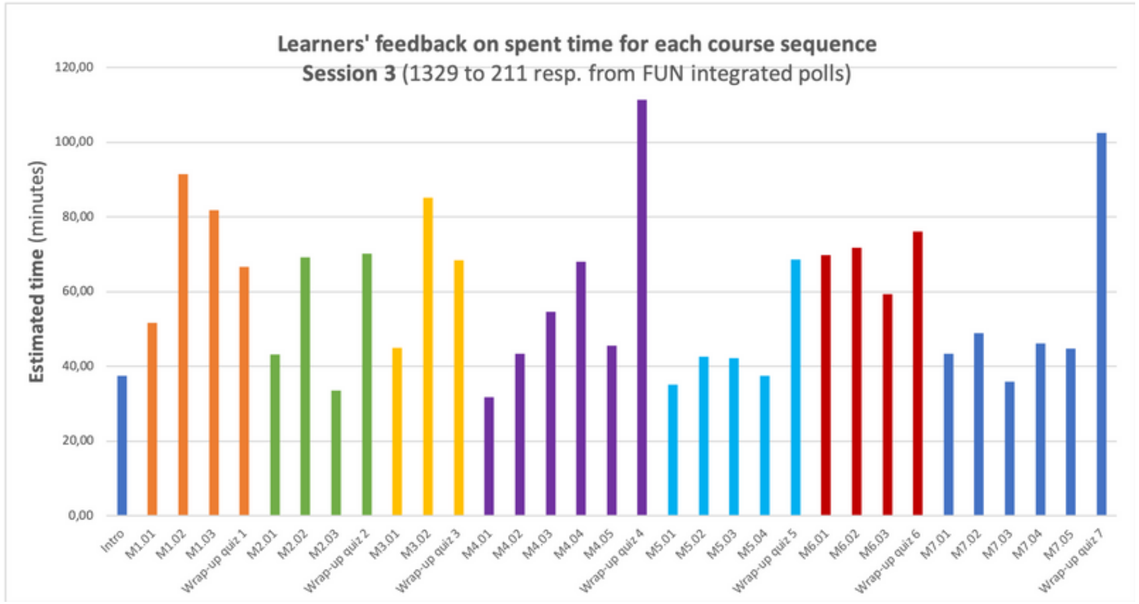


Selection de retours apprenants

"A long time ago, I used to read Descartes, and it blew my mind that this guy literally re-framed the world with his ideas. I think of each of you contributing to this MOOC and to scikit-learn in the same vein."
Participant feedback

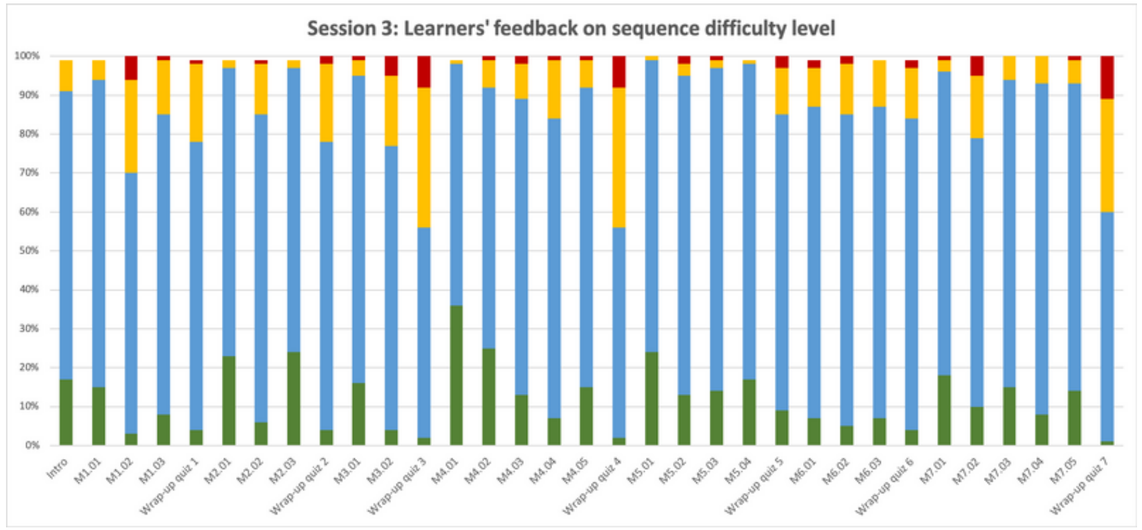
"As a trainer, I really appreciate the quality of the pedagogical approach and really liked the balance between explanation (notebook oriented) and practice"
Participant feedback

Nous améliorons chaque session grâce aux retours

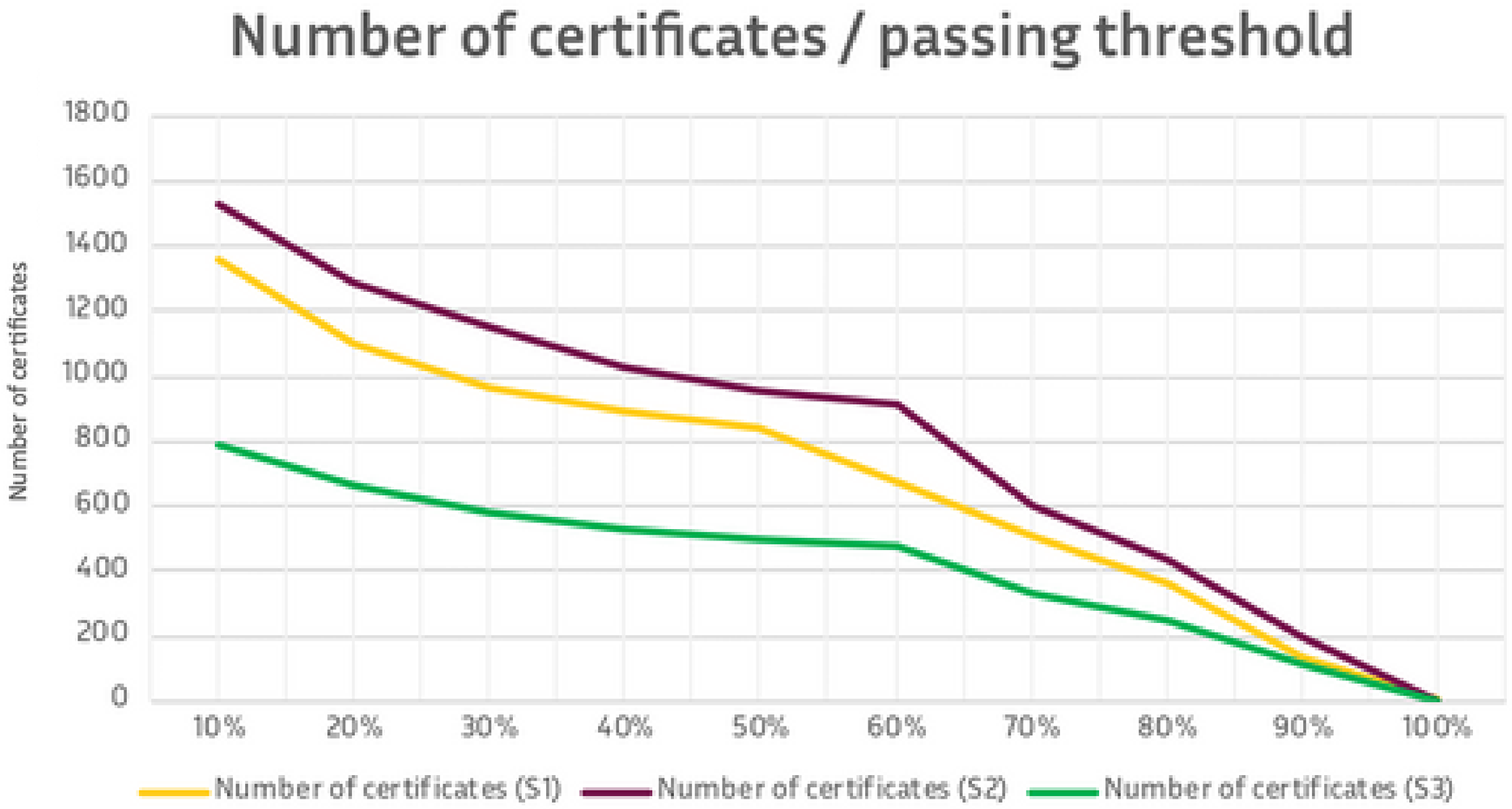


Créer des équivalences avec des crédits de cours

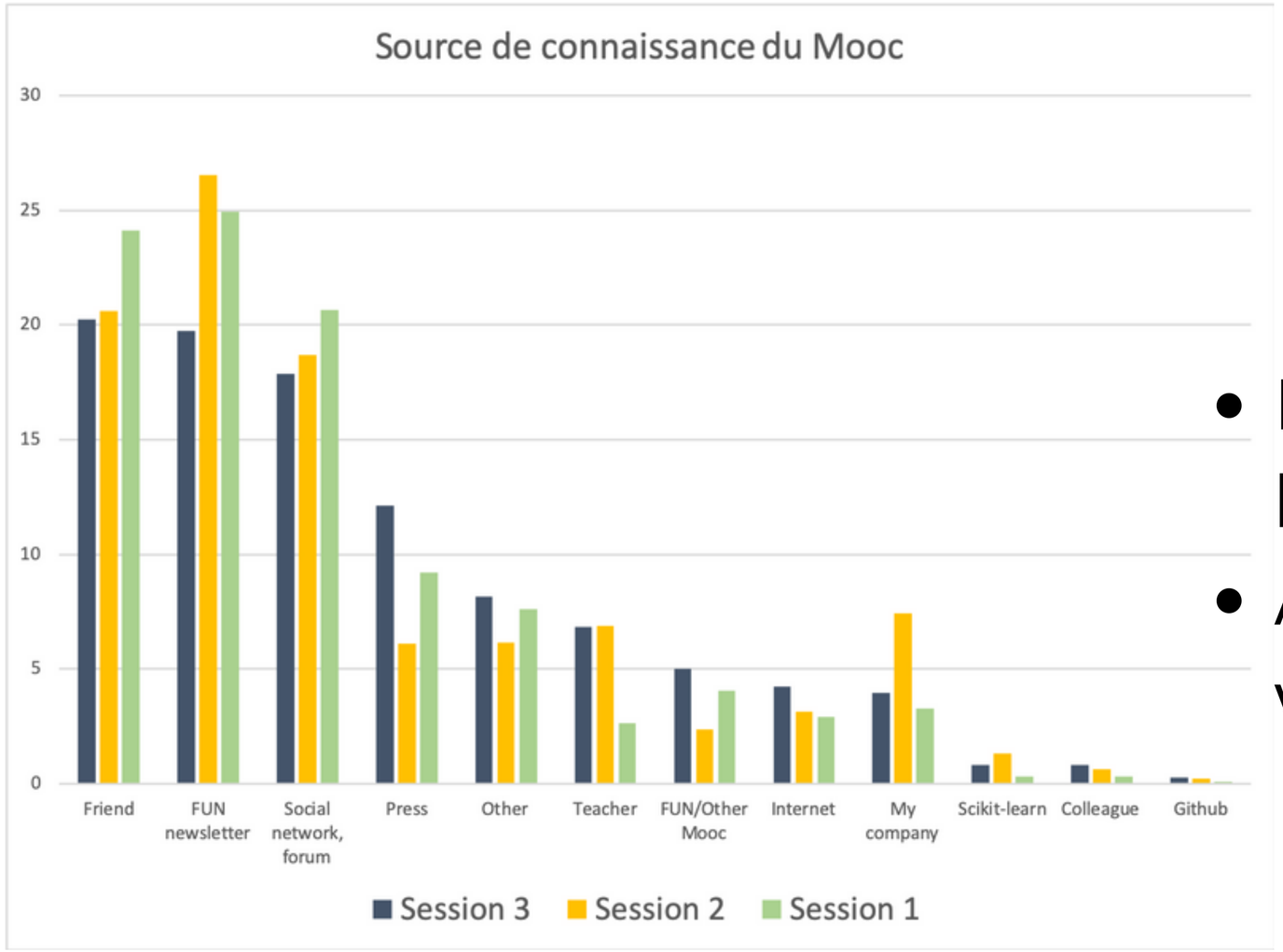
Identifier les concepts ou les questions difficiles



~7% des participants obtiennent une attestation

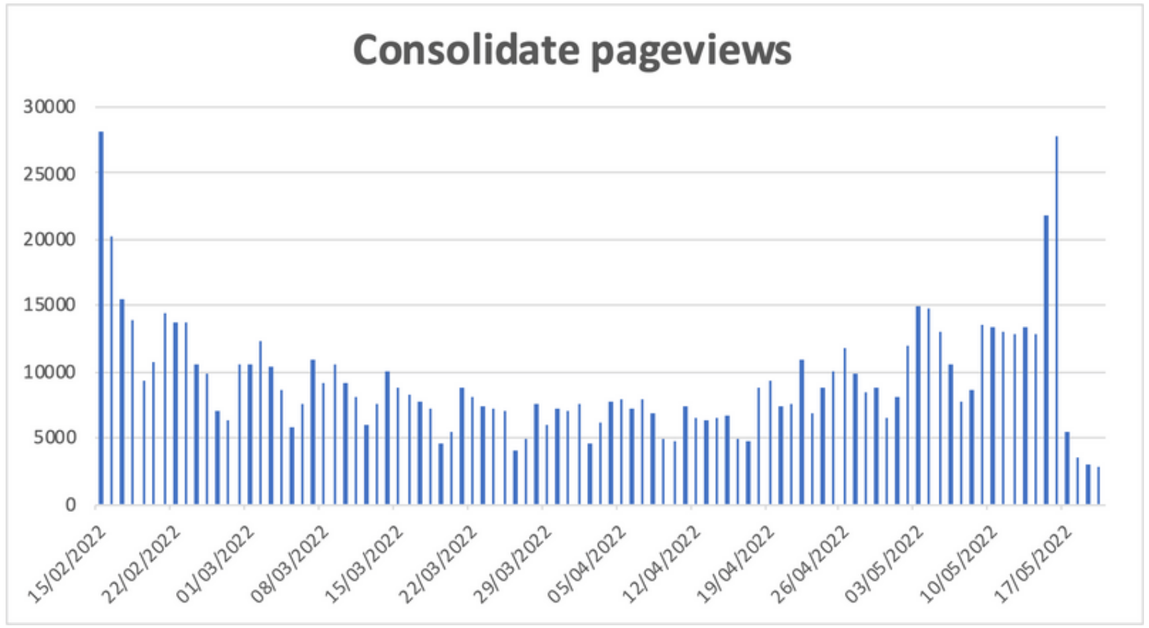


Les canaux de diffusion



- Le canal "Friend" dépasse légèrement le canal "FUN"
- Augmentation de la visibilité dans la presse

Le forum sur Discourse (Inria Learning Lab Benoit)



Moderator	Flags reviewed	Time reading	Topics created	PMs created	Posts created	Revisions
arturoamorq	—	23h	—	2	249	27
glemaitre58	—	16h	—	—	283	16
ogrisel	—	9h	—	1	97	15
mariecollin	—	5h	1	—	20	5
lesteve	—	4h	—	—	34	13
brospars	—	2h	—	—	39	1
lfarhi	—	2h	—	—	5	3
glemaitre	—	12m	—	—	3	—
gaelvaroquaux	—	4m	—	—	1	—
mhc	—	< 1m	—	—	—	—

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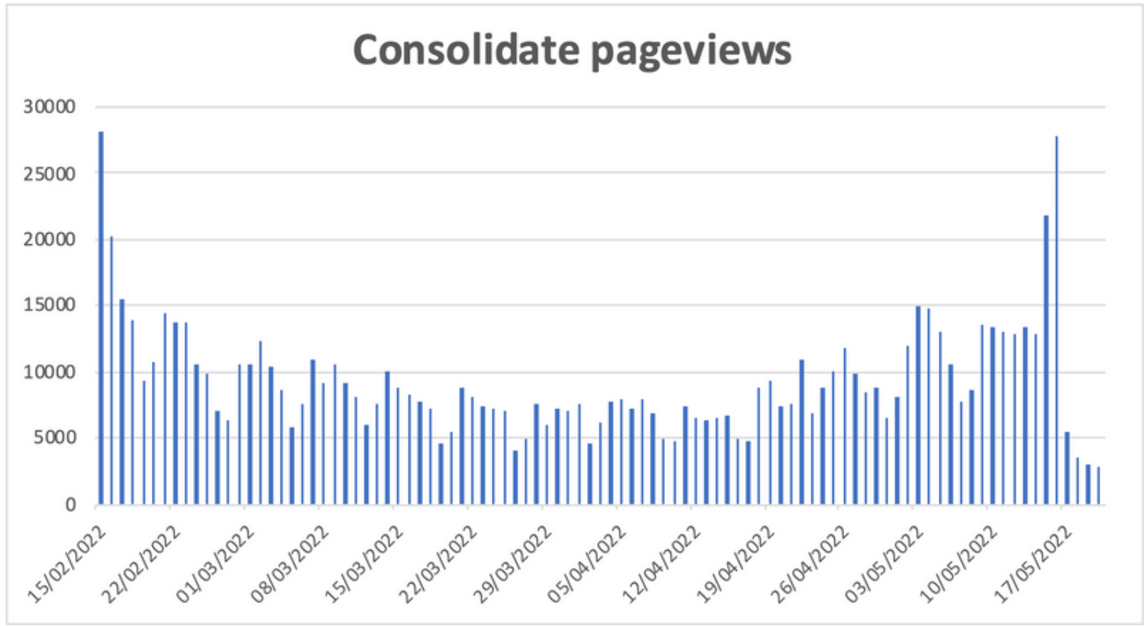

utilisation constante du forum

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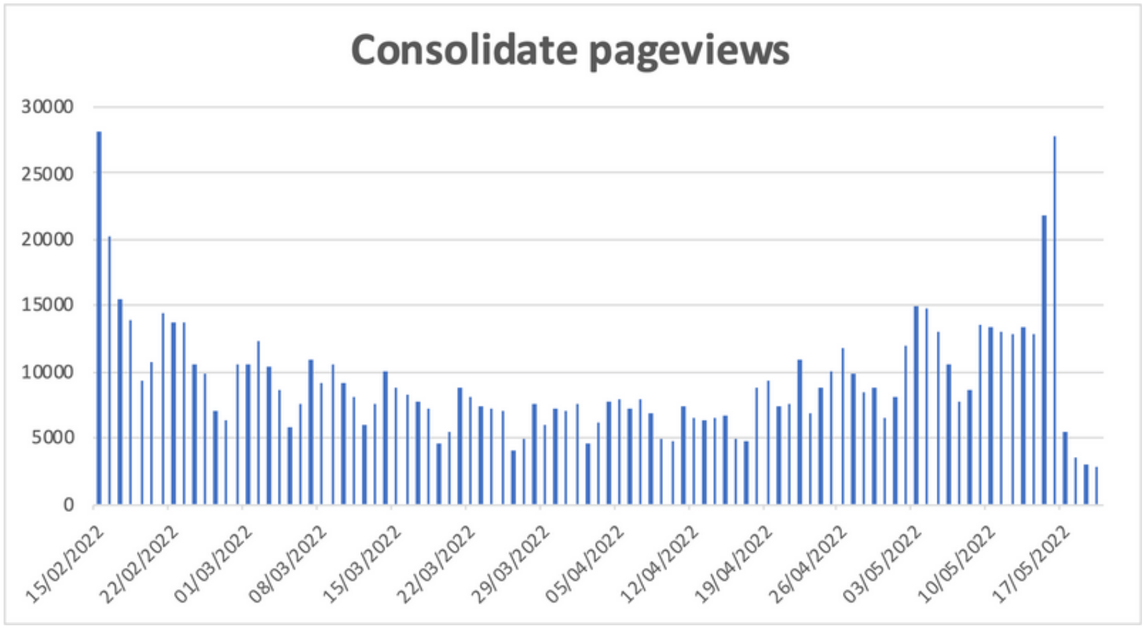

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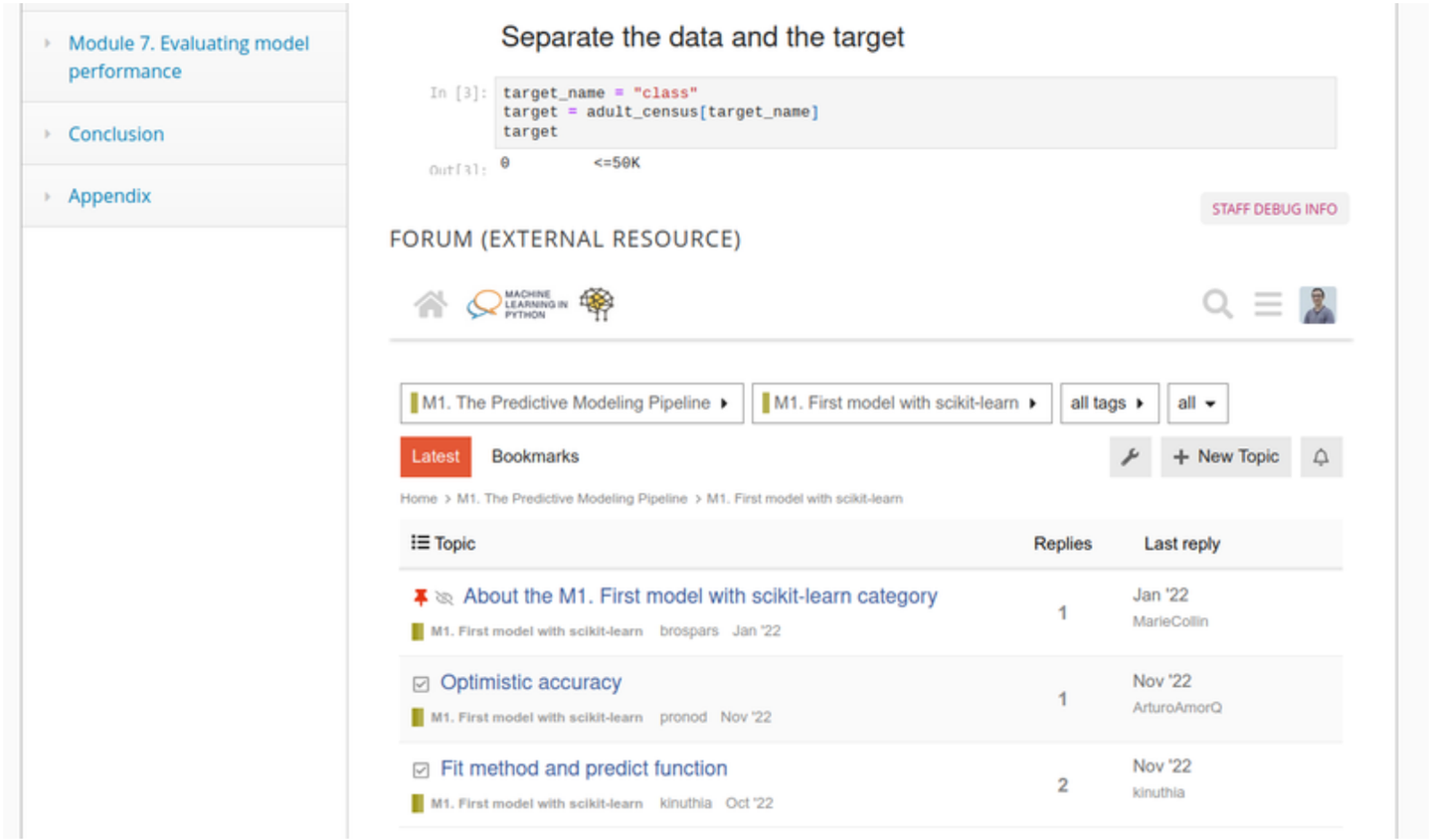
soutien constant
du forum

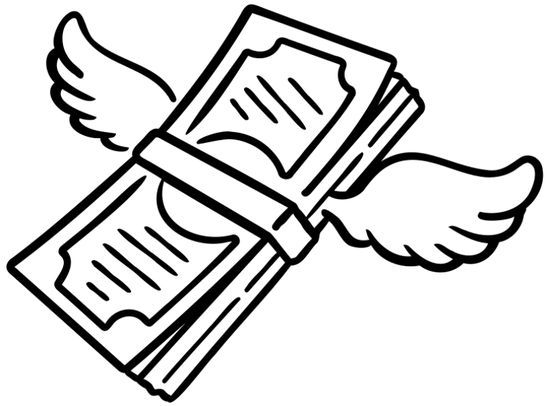
Le forum sur Discourse (Inria Learning Lab Benoit)

- ajustement important : un forum au bas de chaque page avec un sujet Discourse associé



JupyterHub pour l'environnement live (Inria Learning Lab Benoit)

- on-premises
- OVH credits
  - 600€/mois pour session (10 serveurs de 13 pers max)
  - 270€/mois pour le SPOC (3 serveurs de 13 pers max)



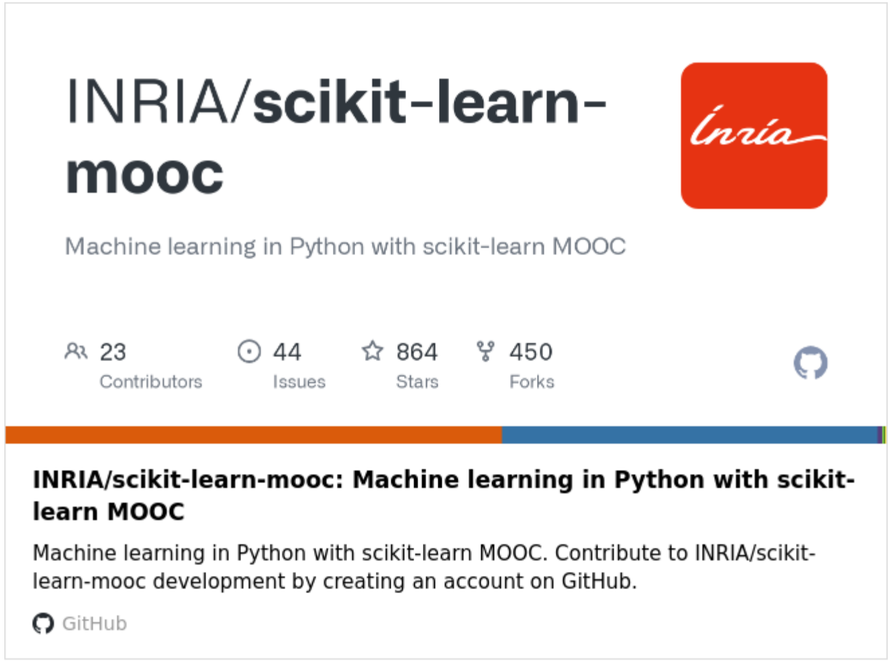
0,2 à 7€/personne/mois

Esprit de collaboration

github + CI setup publique

gitlab privé for quizzes

GHA + Netlify (Loïc)



☆ 858 stars

36 watching

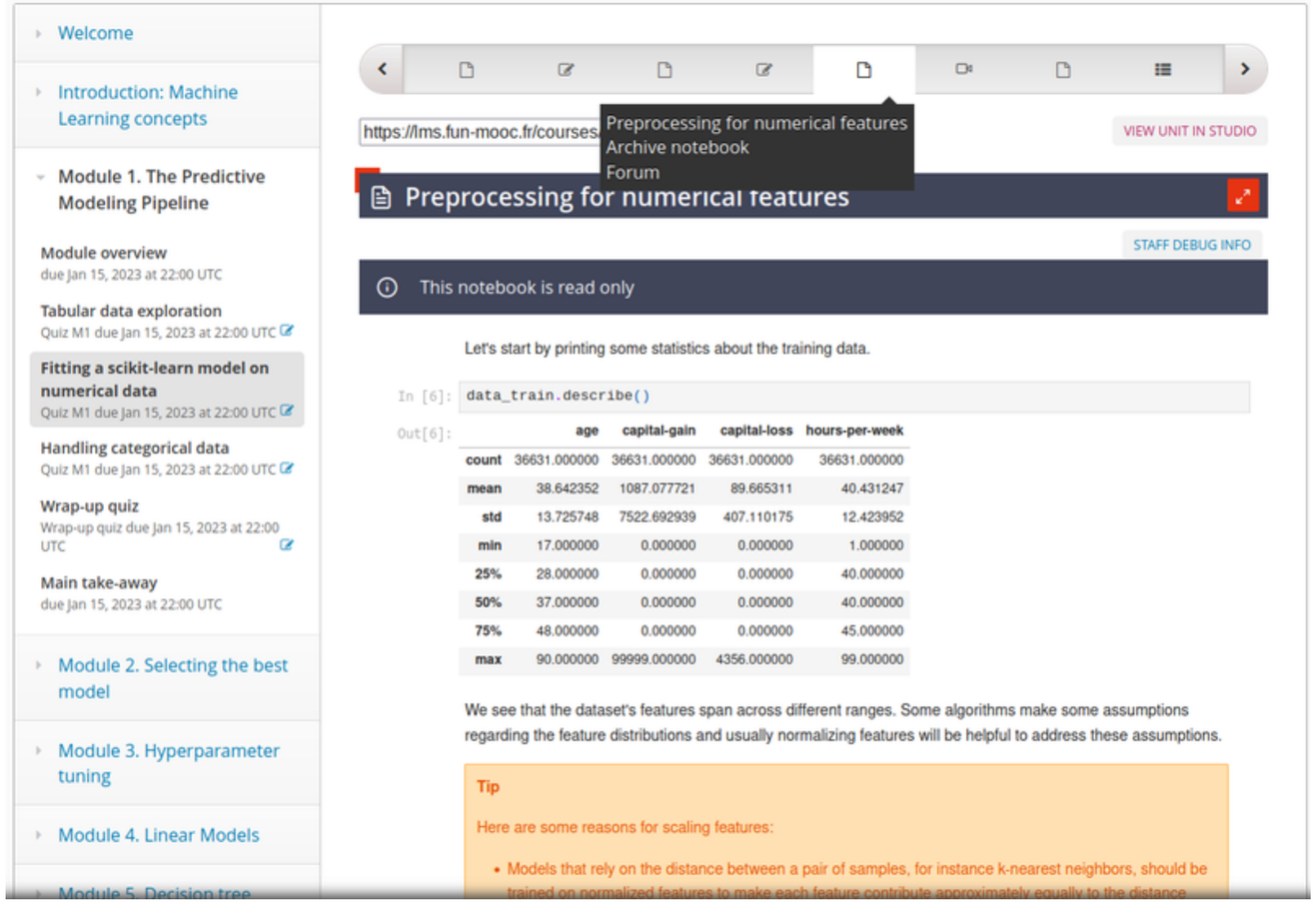
449 forks

Scripts personalisés (Inria Loïc)

- générer des questions de quiz sur github à partir de solutions de quiz sur gitlab privé
- générer l'exercice à partir de l'exercice + solution sur github repo
- jupytext pour générer .ipynb à partir de .py

Intégration sur FUN
(Inria Learning Lab Laurence & Marie)

- JupyterBook comme source de vérité
- la plupart des pages du MOOC réutilisent directement le contenu du repo : JupyterBook HTML ou notebooks du repo
- gestion des quizzes manuelle



La prochaine session sera ouverte en mode self-paced

- à partir d'octobre 2023
- petites corrections et moins fréquentes
- support du forum une fois par semaine
- négociations avec OVH

Wish list

- supporter Pyodide + Jupyterlite
- synchronisation automatique des quizzes
- moteur de recherche interne
- badges par module ?

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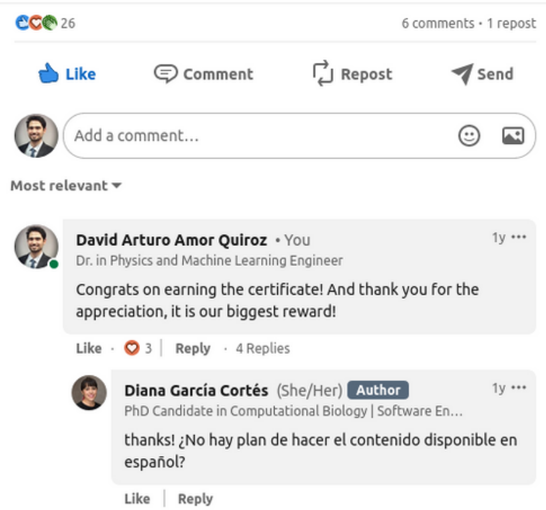
- élargir la communauté des utilisateurs

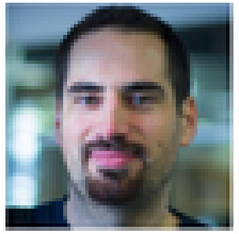


Thank you!

Teachers

Arturo Amor is an engineer at Inria. He is in charge of broadening the scikit-learn documentation's accessibility to all kind of users.

Loic Estève has been a scikit-learn core developer at Inria since 2016. He has been involved in projects at the heart of the scientific Python ecosystem, such as Scikit-learn, Dask and joblib.



Olivier Grisel has been a core contributor to scikit-learn since 2010. He is an expert in machine learning, teaching deep learning at École Polytechnique and Université Paris Saclay.

Guillaume Lemaitre is a research engineer. He has a PhD in computer science and has been a scikit-learn core developer since 2017.

Thomas Schmitt is a machine Learning Engineer at Inria Saclay (Parietal team).

Gaël Varoquaux is a Research Director at Inria. He used Scikit-learn in his research and was active in coordinating the community of developers. In 2018, he became project manager for the Scikit-learn consortium.

The pedagogical and technical team

Inria LearningLab

Aurélie Lagarrigue
Educational Engineer
Inria Learning Lab

Laurence Farhi
Educational Engineer
Inria Learning Lab

Marie Collin
Educational Engineer
Inria Learning Lab

Benoit Rospars
IT engineer
Inria Learning Lab

Madeline MONTIGNY
Educational Engineer
Inria - Service Éducation et Médiation Scientifiques