

Teaching ML in Compact Courses

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ECMLPKDD2020 Teaching ML Workshop Satellite
Event

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Who are we?

Anne Fouilloux



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Our dataset

Anne's

- one deep learning workshop in 2019
 - About 35 learners
 - 2 days of teaching & practicals (carpentry style)
- 3 deep learning work-along & study group sessions
 - 1/2 hour teaching
 - 1.5 to 2 hours bring-your-own-data and discussion

Peter's

- two deep learning bootcamps in 2017 and 2018
 - 1 week each
 - 3.5 days of teaching
 - 1 day bring-your-own-data
- one deep learning hackathon in 2019
- background: PhD students/PostDocs/RGL from natural science(s), business, engineering, digital humanities

Agenda

“Ten Simple Rules for Running Interactive Workshops”

Katrina Pavelin, Sangya Pundir, Jennifer A. Cham
(2014)

1 : Decide Whether an Interactive Workshop Is the Right Choice

Anne

- Interactivity helps to satisfy all the learners (optional exercises, discussion)
- **Co-develop training material** with other instructors and on-board helpers
- Hard to correctly communicate learning objectives (learners often read “buzz” words only)

Peter

- teaching interactively is always a good choice
- **potpourri of speakers** is hard to synchronize in one week (teaching style, notation, exercises)
- single material or single speaker better during the event

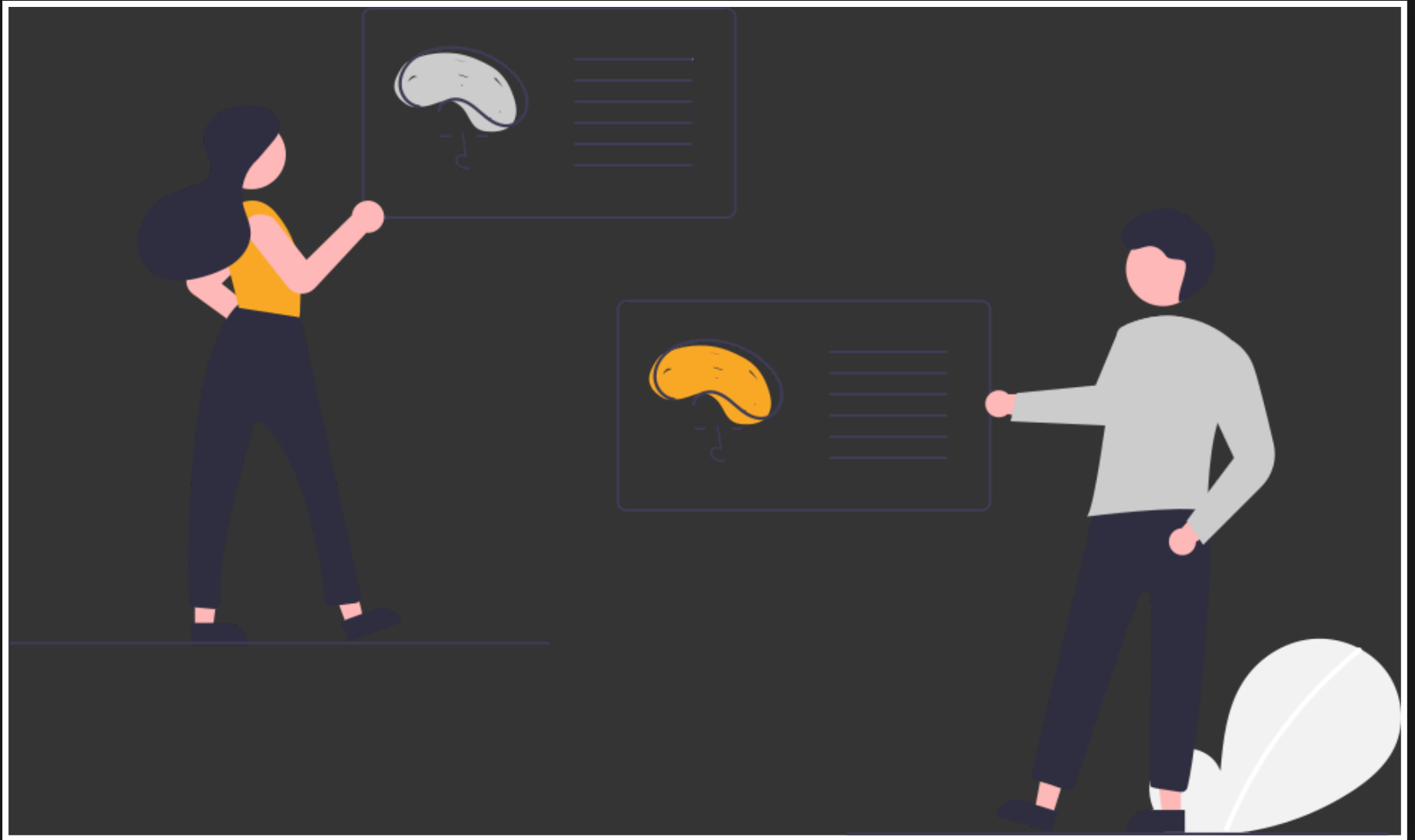
2 : Choose Participants Carefully

Anne

- First come, first served (university policy)
 - **very unhomogeneous classroom**
- Much more homogeneous crowd with work-along and bring-your-own-data
- Lesson learned: **select attendees:**
 - ask about learning objectives, and
 - how they will be using what they learn

Peter

communicating course content super tricky



3 : Identify Suitable Activities

Anne

- ice breaker, game, world of cloud



Peter

- 🚦 started with transfer learning
(run your first deep learning within half a day)
- 700 elaborate on this
(NN, Loss, SGD/Optimization, ...)
- 👍 run example code in ready-made jupyter notebooks

4 : Identify Facilitators and Brief Them

Anne

- 2 **helpers** for workshops:
 - facilitators are even more important for online workshops (zoom host, hackMD host, helpers, etc.)
- for work-along and study groups, instructor also had the role of facilitator:
 - possible with small groups only

Peter

used local cluster with [jupyterhub](#) interface

- accounts for externals
- no HPC
- test, test, test *before* the workshop
- next time: colab ?

5 : Consider Logistics, Facilities, and How to Record Outcomes

Anne

- **Delegate** logistics to Science Library:
 - used to organize workshops/events
 - makes it much easier for instructors
 - can get first help when starting the event
 - loan laptops when required
- standard classroom for workshops and cabaret settings for work-along & study groups



Peter

teaching =  based & coop prepared







6 : Plan the Agenda

Anne





- Used a template from [The Carpentries](#):
 -  plan for optional exercises
 -  long breaks for informal discussions

Peter


- leave room for breaks 
- keep strictly to 7h max per day
- dedicated breaks/sessions
 -  lightning talks
(first day self-introduction)
 -  poster discussions
 -  industry talks

7 : Market Your Interactive Workshop As a Networking Opportunity

Anne



- Ice breaker:  
 - have a short game on how neural networks work effectively (using sticky notes for weights, etc.)
-   Long breaks for informal discussions

Peter





- learners bring a A1 poster to explain their data/problem
 - one longer break per day so people can discuss the posters
 - activity so that all learners cover at least 3-4 posters ()
- bring-your-own-data as self-organized un-hackathon

8 : Get the Best from Your Participants

Anne




-  had 1/2 hour morning coffee
-  help desk before the workshop
- encourage more advance learners to help

Peter




-  used [indico](#) served workshop website as central resource
(provide materials, announce schedule changes, ...)
-  use hackmd/etherpad for topic blocks to collect notes as class
-  used t-shirts to indicate helpers/teachers and learners
-  do quality assurance survey (online **during** workshop)

9 : Follow Up with Your Facilitators and Create a Post- Workshop Report

Anne

-  Encouraged helpers and instructors to teach/lead future work-along & study group sessions
-   Gave a certificate to helpers (at their demand)

Peter



-  tricky to do follow-ups with instructors
(typically busy in day job)
-  certificate to learners and helpers
-  have post-mortem meeting with all
helpers/teachers
(qualitative and quantitative feedback)

10 : Follow Up with Your Participants

Anne

- Follow up with work along and study group activities

Peter

-  postcards from your future self
 - have learners write a postcard to their future self
 - send out 6 months past workshop
-  blog post
- highlights on social media
(return rate 20-30% of participants)

Summaries

in one slide

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