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*It seems like a good idea, but is it scalable?*

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COM6012: **Scalable** Machine Learning - Spring 2024

<https://github.com/com6012/ScalableML>

University of Sheffield

# Three Instructors + Guest (X. Liu)



Shuo Zhou  
Module leader



Robert Loftin



Tahsin Khan

# Four Demonstrators (TAs)



Areeb Sherwani (Head)



Pawel Pukowski



Sina Tabakhi



Xiaolei Xu

# Lectures and Labs

Lecture: Monday  
1pm-2pm @  
Pam Liversidge  
Building LT02

**Monday, 1:00 PM  
–2:00 PM**

**Friday, 11:00 AM  
–1:00 PM**

Lab: Friday  
11am-1pm  
@ Diamond 207





# Labs

- **Bring your own laptop**
  - Short-term [laptop loans](#) are available on level 4 of the Diamond;



- Check [student handbook](#) to request a long-term loan from IT Services
- Finish required tasks of the labs in this slot!

# Other Interactions

- Additional sessions
  - Instructor office hour: Mon 4:30-5:30 pm @G25 Regent Court
  - Online Discord help sessions: Wed 2pm-3pm from week 2
- Blackboard discussion board: post your questions to get answered by the course instructors
  - One general forum: general question/feedback
  - Three forums: Shuo, Robert, and Tahsin
    - Get help on lecture/lab contents
    - Ask respective assignment questions
  - Assignment questions:
    - To ask for clarification on assignment questions (i.e. the tasks to do)
    - NOT to ask how to solve the problems, the correctness of a specific solution, or share a possible solution. It is an assessment.
- Direct email to instructors: **personal/private issues only**

# Assessment

- Lab exercises: 0% (self assessment)
  - Finish lab exercises by the following Wednesdays
  - Solutions to release on the following Thursdays
- Assignment: 50%
  - Progressive release → start EARLY: complete by 22 March?
  - Deadline: 13:00 on Fri, 3rd May (end of lab)
  - Solution release: 13th May
  - Marking and feedback deadline: 27th May
- Final exam: 50%
  - To be scheduled in exam period (20th May – 8th June)
  - Formal exam on Blackboard: 2 hours (with samples available)

# Contents: **Very Hands-on**



Week	Date	Topic	Instructor
1	05 Feb	Introduction to Spark and HPC	Shuo
2	12 Feb	RDD, DataFrame, ML pipeline, & parallelization	Shuo
3	19 Feb	Scalable logistic regression	Shuo
4	26 Feb	Scalable generalised linear models	Robert
5	04 Mar	Scalable decision trees	Tahsin
6	11 Mar	Scalable neural networks	Tahsin
7	18 Mar	Scalable matrix fact. for collaborative filtering (RecSys)	Robert
8	15 Apr	Scalable K-means clustering	Robert
9	22 Apr	Scalable PCA for dimensionality reduction	Robert
10	29 Apr	Apache spark in the cloud (guest lecture, not assessed)	Xianyuan