COM6012: Scalable Machine Learning

Spring 2026

University of Sheffield

https://github.com/com6012/ScalableML

Created by DALL-E

Check-in code: XX-XX-XX

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

https://s3.amazonaws.com/lowres.cartoonstock.com/animals-scalable-product-mice-cats-slingshot-mdbn347_low.jpg

Three Instructors

Shuo Zhou

Module lead

Robert Loftin

Tahsin Khan

Contents

Week	Topic	Instructor
1	Introduction to Spark and HPC	Shuo Zhou
2	RDD, DataFrame, ML pipeline, & parallelisation	Shuo Zhou
3	Scalable logistic regression	Shuo Zhou
4	Scalable generalised linear models	Shuo Zhou
5	Scalable decision trees	Robert Loftin
6	Scalable matrix factorisation for collaborative filtering (RecSys)	Robert Loftin
7	Scalable K-means clustering	Robert Loftin
8	Scalable PCA for dimensionality reduction	Robert Loftin
9	Scalable neural networks (assessed by exam only)	Tahsin Khan
11	Apache Spark in the cloud (not assessed)	Tahsin Khan

Lectures and Labs @Diamond

Lectures @LT5

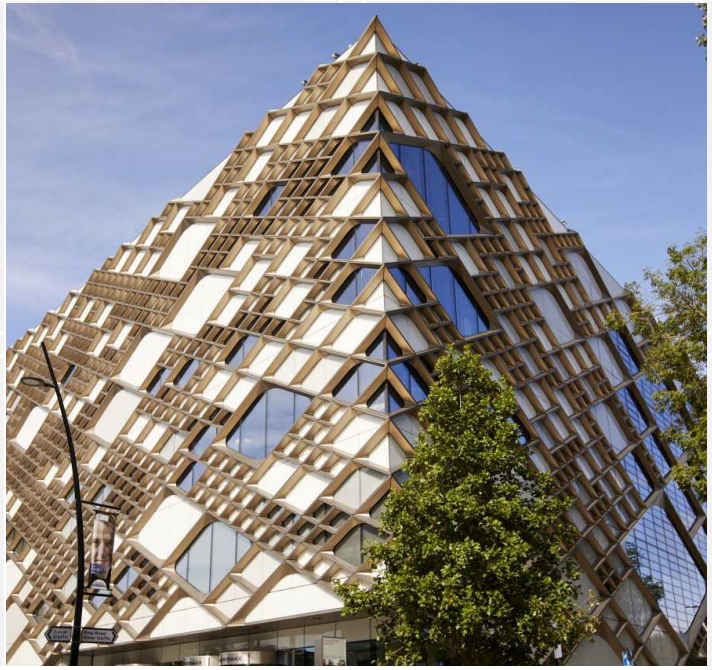
Monday

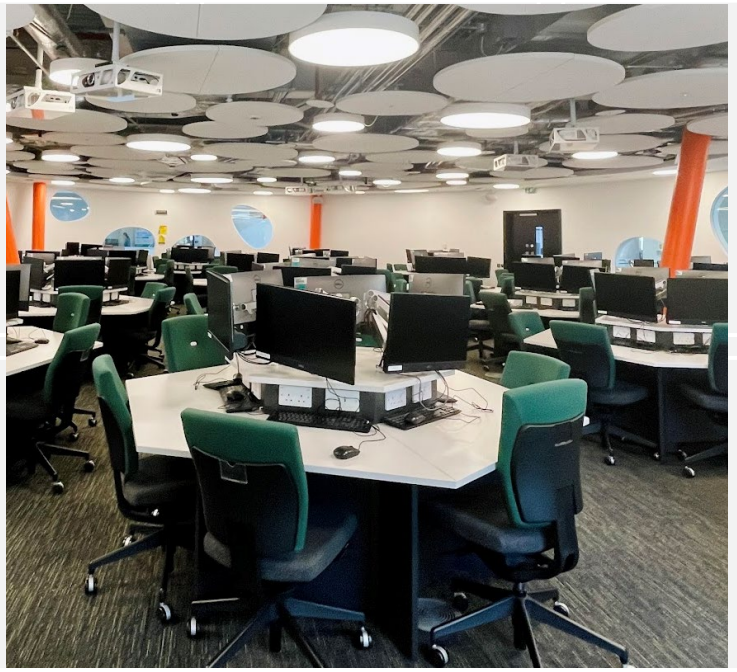
13:00–13:52

Wednesday

11:00–12:52

Labs @Computer Room 1 (2.01)





Labs

- Connect to the HPC cluster for lab tasks
- Bring your laptop (optional)
- Finish required tasks of the labs in this slot!

Four Demonstrators (GTAs)

Christopher J Noroozi (Head)

Xiaolei Xu

Alicja Szwalek

Xiaozhou Tan

Assessment

- Lab exercises: 0% (self assessment)
  - Finish lab exercises by the following Mondays
  - Solutions to release on the following Tuesdays
- HPC driving licence (required by IT services)
- **Assignment: 40%**
  - Progressive release, to be handed out by 27th March
  - Deadline: 13:00 on Wednesday, **6th May** (end of lab 10)
  - **Avoid academic misconduct**
  - Solution release: 22nd May
  - Marking and feedback deadline: 29th May
- **Exam (on Blackboard): 60%**

Additional Support

- Instructor office hour: Wednesday 4:15-5:00 pm @G25 Regent Court
- Demonstrator online support (Week 2-9): Friday (Time TBC) via Discord
- Blackboard discussion board
  - Get help on lecture/lab contents
  - To ask for clarification on assignment questions (i.e. the tasks to do)
  - NOT to ask how to solve the problems.
  - NOT to ask for the correctness of a specific solution or share a possible solution.
- Direct email to instructors: **personal/private issues only**