COM6012: Scalable Machine Learning

Spring 2025

University of Sheffield

https://github.com/com6012/ScalableML

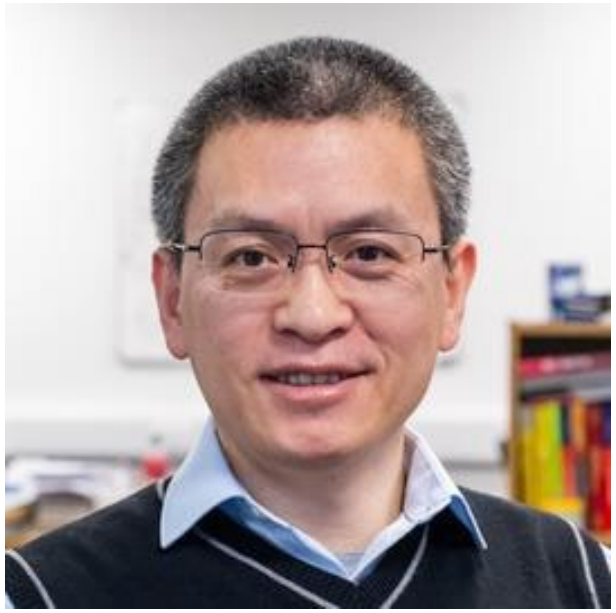
Created by DALL-E

Check-in code: XX-XX-XX

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

Three Instructors + Guest (X. Liu)

Shuo Zhou
Module lead



Haiping Lu

Tahsin Khan

Five Demonstrators (TAs)

Areeb Sherwani (Head)

Christopher J Noroozi

Charlie Grimshaw

Xiaolei Xu

Xiaozhou Tan

Lectures and Labs

Lecture @ Diamond LT5

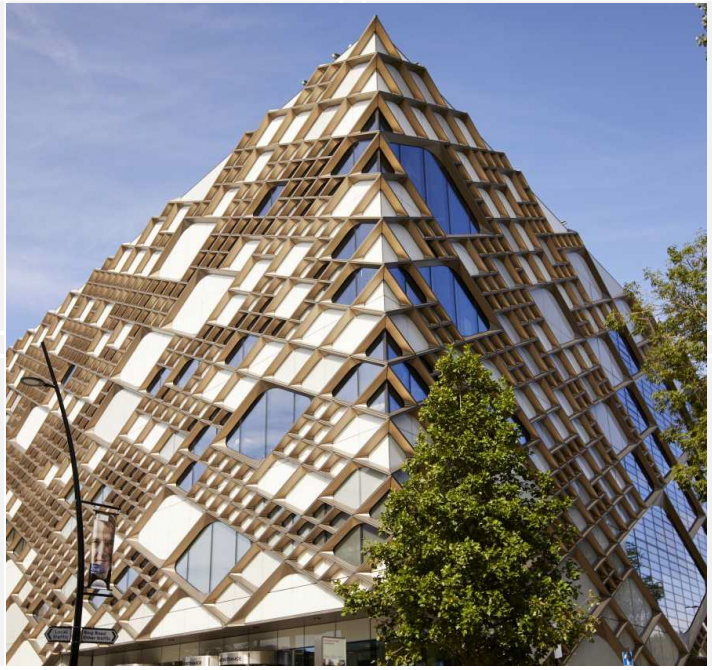
Wednesday

12:00–13:00

Thursday

11:00–13:00

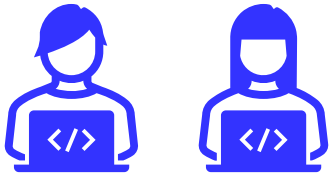
Lab @ Diamond Computer Room 6 (4.01)



Labs

- **Bring your own laptop**
  - Short-term laptop loans are available on level 4 of the Diamond;
- Use HPC clusters
- Finish required tasks of the labs in this slot!

Contents: Very Hands-on



Week	Date	Topic	Instructor
1	12 Feb	Introduction to Spark and HPC	Shuo
2	19 Feb	RDD, DataFrame, ML pipeline, & parallelization	Shuo
3	26 Feb	Scalable logistic regression	Shuo
4	05 Mar	Scalable generalised linear models	Shuo
5	12 Mar	Scalable decision trees	Tahsin
6	19 Mar	Scalable neural networks	Tahsin
7	26 Mar	Scalable K-means clustering	Tahsin
8	2 Apr	Scalable matrix factorisation for collaborative filtering (RecSys) and PCA for dimensionality reduction	Haiping
9	30 Apr	Apache spark in the cloud (not assessed)	Xianyuan
10	7 May	Reproducible and reusable AI (not assessed)	Xianyuan

Assessment

- Lab exercises: 0% (self assessment)
  - Finish lab exercises by the following Tuesdays
  - Solutions to release on the following Wednesdays
- **Assignment: 40%**
  - HPC driving licence (1%) - Due on Thursday, 13th Feb (50% penalty for late submission)
  - Formal assignment **(Unfair means!)**
    - Progressive release by 27th March
    - Deadline: 13:00 on Thursday, **8th May** (end of lab)
    - Solution release: 23rd May
    - Marking and feedback deadline: 30th May
- **Exam: 60% (100% for external students)**
  - To be scheduled in exam period
  - Formal exam on Blackboard: 2 hours (with samples available)

Additional Sessions and Support

- Additional sessions
  - Instructor office hour: Wednesday 5:00-6:00 pm @G25 Regent Court
  - Online Discord help sessions: Thursday 2pm-3pm from week 2
- Blackboard discussion board
  - One general forum: general question/feedback
  - Three forums: Week 1-4, Week 5-7, and Week 8
    - 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**