CHAIR FOR CLINICAL BIOINFORMATICS
SAARLAND UNIVERSITY

PRO-/SEMINAR SINGLE-CELL RNA SEQUENCING – KICK-OFF MEETING

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08/06/2020

Thanks for enrolling!

- Why?
  - Single-cell sequencing technologies are trending
  - Bioinformatics for single-cell offers many exciting *-omics* applications
- What?
  - We focus on transcriptomics, i.e. sequencing RNAs from populations of cell types and tissues
  - Can be in a general research context or disease context
- How?
  - Papers selected for the seminar follow a logical connection & ordering
  - We selected the papers from top of the iceberg → The field is moving fast!

- Proseminar (Bachelor's only, 5 CPs - graded):
  - At least in 3rd semester
  - Successful attendance of Bioinformatics I
- Seminar (Master's only, 7 CPs - graded):
  - No formal prerequisites
  - But good skills in **maths, programming, and bioinformatics** are assumed
- Good english skills as **all talks** will be held in english language!

AVAILABLE TOPICS COVER THE ENTIRE SINGLE-CELL RNA DATA EVALUATION PIPELINE

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1: Systematic comparison of single-cell and single-nucleus RNA-sequencing methods

2: zUMIs – A fast and flexible pipeline to process RNA sequencing data with UMIs

3: Modular and efficient pre-processing of single-cell RNA-seq

4: A benchmark of batch-effect correction methods for single-cell RNA sequencing data

5: Supervised classification enables rapid annotation of cell atlases

6: On the discovery of subpopulation-specific state transitions from multi-sample multi-condition single-cell RNA sequencing data

7: The dynamics and regulators of cell fate decisions are revealed by pseudotemporal ordering of single cells

8: Benchmarking algorithms for gene regulatory network inference from single-cell transcriptomic data

9: A Single Cell Transcriptomic Atlas Characterizes Aging Tissues in the Mouse

All papers should be freely accessible via the university VPN

Event	Time	Comments
Registration	04.05.2020-11.05.2020	
Kick-off meeting [mandatory]	Today (08.06.2020)	Remote (zoom)
Deadline to register in HISPOS OR de-register from seminar [mandatory]	29.06.2020	3 weeks after the kick-off meeting
Deadline for feedback [optional]	14.09.2020	2 weeks before the presentations
Presentations	28.09 / 29.09.2020	Remote (Microsoft Teams)
Summary submission deadline	05.10 / 06.10.2020	1 week after the presentations

Meetings are performed remotely via zoom **or Microsoft Teams**

Certificate requirements:

1. Successful presentation:
    - Talk: **30 minutes** for a Proseminar and **40 minutes** for a Seminar
    - Discussion: **5 minutes** during which you should be able to answer questions from the tutors/audience
2. Attendance to all presentations is **mandatory**
3. Submitting a summary report:
    - Short description of the presented topic(s)
    - Ca. 2 pages of text, excluding title (page), references, figures, tables etc..
    - No figures, tables or formulas required
    - Main structure: title page, main text (with or without subsections), references
    - It is recommended to write the report using LaTeX to train scientific writing

Final grade:

- Primarily based on the given presentation & follow-up discussion
- Might be influenced by the quality of the submitted summary report

Most importantly:

Practice!

But also:

- Try to reduce the amount of text
  - prevent showing entire sentences
  - use figures or visualizations provided by the literature
- Rule of thumb:

  you should be able to explain everything that's shown on your slides
- Proof-read your slides
- Speak freely and do not use cheat sheets

We expect you to:

- Read our presentation guidelines:
  https://www.ccb.uni-saarland.de/wp-content/uploads/2017/01/guidelines.pdf
- Fill-out and send the presentation checklist along with your slides:
  https://www.ccb.uni-saarland.de/wp-content/uploads/2014/09/presentation_guidelines.pdf
- Ask for feedback or formulate questions whenever you are stuck
- Independently use the available literature to enhance your knowledge on the assigned topic
  - *See also our **recommended reading** literature on the course site!*

Any questions?

https://www.ccb.uni-saarland.de/teaching/pro-seminar-single-cell-rna-sequencing/