

# DQBM Retreat



## WORKSHOP PROGRAMME 2024

This booklet contains a short description of the workshops that you can sign up for. Participating in workshops is not mandatory. There are limited places available for each workshop. Everyone can only sign up for one workshop. Workshop places are going to be assigned on a first-come first served basis. Please sign up for the workshop of your preference until 16<sup>th</sup> February (23:59 CET) using the following link:

<https://forms.gle/GQgLpT6PqvrEv6SW8>

### Workshop session 1: 9.00-10.20

#### Virtual Reality for Deep Learning

By Rami Al-Maskari (Menze Lab)

Deep Learning usually relies on annotated samples for training a model. In case your data is volumetric, shows novel behaviour or your biological model has not been studied before in this context, it can be very hard to generate ground truth data for training and testing. This is where VR steps into the game: Here, you see your data as a whole and gain crucial spatial insights. From simple blob-like cell bodies to peripheral neurons spanning the whole body, you can annotate everything up to 15 times faster and analyze complex structures with ease!

##### Who is the workshop for?

- Biologists who work with volumetric datasets
- Deep Learning scientists looking for new annotated data
- People who never wore a VR headset but would really like to :wink:

##### What will be covered during the workshop?

- Basic principles of supervised learning
- Use cases of VR annotation
- Best practices of VR annotation
- Practical part - dive into VR yourself!

##### What to bring?

- Curiosity

##### Maximum number of participants:

- 20



## WORKSHOP PROGRAMME 2024

Workshop session 2: 9.00-10.20

### Interpreting single-cell RNA-sequencing data

By Zsolt Balázs (Krauthammer Lab)

Single-cell omics are being used by an increasing number of domains in Biology. This increases the need for more and more biologists to be able to interpret single-cell omics data. This workshop will introduce the participants to the basics of single-cell RNA-sequencing data analysis. The workshop will use the Seurat R package and cover the basic bioinformatics tasks of single-cell transcriptomics. While the workshop is about single-cell RNA sequencing, many of the concepts learnt during the workshop can be translated to spatial transcriptomics or single-cell ATAC-sequencing data analysis too.

#### Who is the workshop for?

- Biologists who want to understand the bioinformatics workflow of single-cell RNA sequencing data analysis
- People who plan to analyze single-cell RNA sequencing data in the future
- People who are interested in what can be learnt from single-cell RNA sequencing data

#### What will be covered?

- Data structure
- Basic quality control
- Cell typing
- Differential gene expression analysis
- Data visualisation

#### What to bring?

- Your laptop with R and Rstudio and Seurat installed
- The installation instructions will be provided 5 days before the workshop. Please come with the packages installed!

#### Maximum number of participants:

- 20

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## WORKSHOP PROGRAMME 2024

Workshop session 3: 9.00-10.20

### Science Communication Workshop

By Ruchi Manglunia (Polymenidou Lab)

Science Communication is a new and upcoming field focusing on bringing science out of the labs and to the public. The pandemic also showed the world the importance of communicating science without giving wrong or diluted information. As science and technology advance, it becomes necessary that the public is also made aware of these advances! This where a Science Communicator steps in; they understand the science and research to communicate it in the simplest way to anyone who is curious to know.

#### Who is the workshop for?

- Anyone who has struggled to explain what they do to their non-scientist friends and family!

#### What will be covered during the workshop?

- Basic introduction of Science Communication
- Examples of Science Communication platforms
- Short hands-on SciComm activity

#### What to bring?

- Enthusiasm

#### Maximum number of participants:

- 10

Thank you for your interest.  
We are looking forward to seeing you soon.