

GMDS 2018: WORKSHOP

Organized by the GMDS Working Group “Biomedical Informatics”

Title: Multi-Omics Data Analysis
Date: Wednesday, September 5th 2018
Room: SL 0008a
Key Words: biomedical informatics, multi-omics, radiomics, data analysis, machine learning
Language: English

1. Contact:

Name: Löhnhardt, Benjamin
Institution: University Medical Center Göttingen, Department of Medical Informatics
Address: Robert-Koch-Straße 40, 37075 Göttingen
Telephone: 0551-39 61526
E-Mail: Benjamin.Loehnhardt@med.uni-goettingen.de

2. Workshop Description:

Increasing amounts of high-throughput data sets are collected during the examination of patients, in particular imaging data, and data from genome-wide screening techniques like next-generation sequencing (NGS) or proteomics. The analysis of these complex data sets identifies new challenges for biomedical informatics, medical bioinformatics, biostatistics, and systems medicine. Finally, it aims at a more precise classification of patient groups during the diagnosis and therefore it enables customized therapies in personalized medicine. Multi-omics data integration is one of the major challenges in the era of precision medicine. Within this workshop, we want to consider the holistic lifecycle of multi-omics data: 1) How to store multi-omics data in databases using the FAIR principles to achieve data quality and reusability. 2) How to process multi-omics data with validated data analysis pipelines. Furthermore, use cases and applications of multi-omics data analysis will be presented.

3. Audiences

The workshop addresses a wide audience from the areas of bioinformatics, medical informatics, and systems biology to biostatistics as well as epidemiology. The workshop should give an overview over the field and especially address the overlaps and interfaces between all the different research areas and scientific communities active in multi-omics data analysis.

4. Methods

In several talks bridging the domains of biomedical informatics, medical bioinformatics, biostatistics, and systems medicine, the demands, challenges, and potential solutions regarding multi-omics data analysis should be presented. Furthermore, a fruitful interdisciplinary discussion should be encouraged.

5. Hosts and Speakers

Hosts / Moderator:

- Prof. Dr. Ulrich Sax (University Medical Center Göttingen, Dept. of Medical Informatics)
- Prof. Dr. Tim Beißbarth (University Medical Center Göttingen, Dept. of Medical Statistics)

Designated Speakers: See agenda

6. Agenda

Session 1: Workshop "Multi-Omics Data Analysis":

08:30 - 08:45	Intro Tim Beißbarth, University Medical Center Göttingen Ulrich Sax, University Medical Center Göttingen
08:45 – 09:20	"Transcriptional and Translational Landscape of murine heart disease models" - Prof. Dr. Christoph Dieterich, UniversitätsKlinikum Heidelberg
09:20 - 09:55	"Radiomics and Computer Assisted Diagnosis - when will it become part of clinical routine?" - Prof. Dr. Alexander Radbruch, DKFZ Heidelberg
09:55-10:00	Discussions

Break:

10:00 - 10:45	Keynote "Odette Wegwarth"
10:45 - 11:15	Coffee

Session 2: Workshop "Multi-Omics Data Analysis" & AG " Statistische Methoden in der Bioinformatik & Mathematische Modelle in der Medizin":

11:15 - 11:50	"Integrative Modeling of Multi-Modal Data for Patient Prognosis and Stratification" - Prof. Dr. Holger Fröhlich, University of Bonn
11:50 - 12:25	"How to Share Your Data FAIR – Integrated Data Management for Systems Medicine" - Martin Golebiewski, Heidelberg Institute for Theoretical Studies
12:25 - 12:35	Discussions
12:35 - 12:45	Neuwahlen der AG " Statistische Methoden in der Bioinformatik & Mathematische Modelle in der Medizin"