

BioMedVis Summer School (project 92p8)

Final Report

The project BioMedVis Summer School was realized according to the proposed project specification. The Summer School was held in Brno, Czech Republic on 19. - 21. September 2022 on the grounds of the Faculty of Informatics, Masaryk University.

Program

The event was focused on providing a broad introduction to the field of Biological and Medical Visualization for students and young scientists with predominantly computer science background starting their research in this field. The program was composed of altogether 14 hour-long lectures on various topics in this field. The primary aim of these lectures was to provide a good starting point for researchers entering this field and help them overcome the initial barrier caused by a lack of bio/medical knowledge and a lack of dedicated learning opportunities to fill the required knowledge.

The lectures were given by researchers from Masaryk University and TU Wien. However, thanks to the timing of the event directly preceding EG VCBM (Eurographics Workshop on Visual Computing in Biology and Medicine), which was held in Vienna on 22.-23. September, we were also able to attract several internationally recognized researchers who we invited to give a guest lecture. Together, the lectures covered the following topics:

- A Primer on Biomedical Data Sources (J. Byška and K. Furmanová, FI MUNI)
- Interactive Visual Analytics and Modelitics (for molecular data) (E. Gröller, TU Wien)
- Narrative Medical Visualization (B. Preim, Otto-von-Guericke University)
- Taking (medical) visualization off the screen (R. Raidou, TU Wien)
- Ensembles and Cohorts in Medical Visualization (L. Linsen, University of Münster)
- Biomedical Visualization as an Interface between Data, Algorithms, and Humans (S. Bruckner, University of Bergen)
- Current Trends in the Analysis of Time-varying Data (A. Arleo, TU Wien)
- Uncertainty-Aware Visual Analytics in Biomedical Applications (C. Gillmann, University of Leipzig)
- AI and Visual Computing for Histopathology Images (M. Agus, Hamad Bin Khalifa University)
- Interpretable and Interactive Machine Learning: Examples from Neuroimaging and Ophthalmology (T. Schultz, University of Bonn)
- Trends & Opportunities in Visualization for Physiology (H. Hauser, University of Bergen)
- Navigating and Making Sense of Large 3D Visualizations (D. Kouřil, FI MUNI)
- Lossless Multidimensional Visualization Techniques (M. L. Ganuza, Universidad Nacional del Sur)
- The Necessity of Data Augmentation in Biomedicine (D. Svoboda, FI MUNI)

The complete program can be seen on the website of the event:

<https://biomedvis.github.io/2022/>

The official program started on Monday 19.9. at 13:00, with participant registration starting at 12:00, to allow enough time for participants from Vienna to travel to Brno and arrive at the venue. The program was organized into one and two-hour blocks of lectures with allocated time for questions and discussion. The interleaving 30-minute breaks offered the participants

the opportunity to meet each other and further discuss the topics with the invited lecturers. The official part of the program ended on Wednesday 21.9. at 13:00.

The BioMedVis Summer School 2022 continued the initiative started in spring 2021 as First Spring School on BioMedical Visualizations, which was held as an online event. We originally planned to host the BioMedVis Summer School 2022 as purely an on-site event for participants of this project from TU Wien and Masaryk University, since we believe the opportunity to meet peers and experts in person is far superior to online events and fosters the exchange of ideas and future collaboration. The event was advertised through our professional networks at both universities to students at various stages of their studies (bachelor, master, and starting doctoral students). The resulting participants of the SummerSchool included 11 student participants from TU Wien, 7 student participants from Masaryk University, 3 researchers from TU Wien, 5 researchers from Masaryk University, and 7 guest researchers. The school was also attended by 4 student participants from other foreign institutions.

However, to increase the outreach of the event and provide a learning opportunity also to students who could not attend the event in person, we decided to enable online participation, via lecture streaming and questions posed via the Discord platform. We advertised the opportunity to attend the event remotely via our professional networks at institutions conducting research in BioMedical Visualizations. Additionally, Biovis and VCBM organizations endorsed our event by announcing it through their website. In total, 34 additional participants registered for online attendance.

Results

In addition to streaming, the majority of the presenters agreed to have their lectures recorded and shared online after the event. These lectures are now accessible via BioMedVis YouTube channel: <https://youtube.com/playlist?list=PLyE6k2DMMEImBwoWngNGTK3I5HKf6NMr-> and can be accessed freely by any starting researcher interested in these topics. The lecture slides as well as links to some additional materials and recorded lectures were also shared with the participants and the BioMedVis community via a private BioMedVis Discord server, which was started in 2021 and where a community of ~300 students and experienced researchers is gathered and exchanging ideas and resources.

With this, we conclude that the BioMedVis Summer School not only managed to foster local Czech - Austrian collaboration between young and senior researchers but also benefited the entire community in the biomedical visualization field, as the materials gathered through the Summer School can help new generations of researchers join this community and overcome initial difficulties connected with starting research in this strongly interdisciplinary field.

Organization

Katarína Furmanová was the principal investigator and main local organizer, responsible for the project management and on-site event organization.

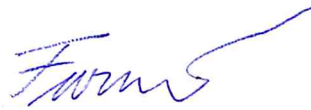
Jan Byška and **Barbora Kozlíkova** helped with program organization and local event organization.

Renata Raidou was responsible for the coordination of the participants on the Austrian side. She was the main contact person for Austrian students. She also helped with the preparation of the program.

We also received support from organizers of the BioMedVis Spring School 2021, who helped with the propagation of the online part of the event.

The technical infrastructure and venue were provided by the Faculty of Informatics, Masaryk University (FI MU).

During the event, the AKTION project was represented by a logo and link on the event website, printed program sheets for participants, information graphics used throughout the event, and verbal acknowledgment during the opening and closing parts of the program.



Katarína Furmanová
Masaryk University



Renata Georgia Raidou
TU Wien

Attachments

Participant list