6AM

11AM in London (GMT), 8PM in Tokyo (GMT+9)

Data Visualization Workshops & Events

Moderator: Andreas Bueckle, *Indiana University*

Panelist:

- Christiane Hütter, *University of Vienna, Vienna, Austria*
- Donát Köller, *Semmelweis University, Budapest, Hungary*
- Liuhuaying Yang, *Complexity Science Hub, Vienna, Austria*
- Paul Kahn, *Northeastern University*

ENVISIONING INTELLIGENCES

Aurora Mititelu

Christiane Hütter

Christiane “Chris” Hütter is an architect and a computational bioengineer by training and currently pursuing a Ph.D. in the research group of Jörg Menche at the *Ludwig Boltzmann Institute for Network Medicine* at the University of Vienna.

She explores how virtual reality can help navigate and understand complex biomedical data via 3D data representations and natural language- and gesture-based human-data interaction and communication. Her projects evolve around developing immersive data visualizations for complex systems, such as the human protein-protein interaction network. Aiming to visualizing (biological) systems, she is working with cross-disciplinary tools and methods, from architecture to digital arts (3D, VR, dynamic visualizations) to create engaging ways to explore data for scientific insights.

Donát Köller

Donát Köller is a junior data scientist and mathematics PhD student at the Budapest University of Technology and Economics. His research interests lie at the intersection of statistics, discrete mathematics, machine learning, and network science. Currently working as a research and teaching assistant at the Human and Social Data Science Lab (HSDSLab), focusing on applying machine learning-based solutions to problems in social science-related fields, including educational data science, social networks, and science of science.

Liuhuaying Yang

Liuhuaying Yang is a data visualization specialist and faculty member at the Complexity Science Hub in Vienna. She creates interactive visualizations that transform complex scientific research and societal data into engaging, accessible experiences. Her expertise spans design and front-end development for interactive data projects at the interface of academic research and real-world applications. She has worked with organizations including the Massachusetts Bay Transportation Authority, MIT Senseable City Lab and SMART Future Mobility in Singapore, and SPH Lianhe Zaobao, producing interactive data journalism and research visualizations.

Her work has received first prize in the 2019 TRB Innovations in Transit Performance Measurement Challenge, first place in the interactive category of the 2023 World Dataviz Prize, two Gold awards in the 2024 Information is Beautiful Awards (one in the Science, Technology & Health category and one as Impressive Individual), and most recently the City of Vienna's Promotion Prize in STEM for her contributions to making complex science accessible and understandable.

Paul Kahn

Paul Kahn's engagement with visualization of large knowledge structures began with hypertext research projects in the 1980s and continued with the development of diagram techniques for describing information architecture. He began teaching Information Design History at Northeastern University's Information Design & Data Visualization program in 2015. Paul created the first agency in France focused on information architecture, preceded by a decade leading Dynamic Diagrams in Providence RI, and led UX projects as Experience Design Director at Mad*Pow. During and after the pandemic, he developed and wrote about the Covid-19 Online Visualization Collection (COVIC). His essays about information design and data visualization appear in Nightingale and EYE Magazine.

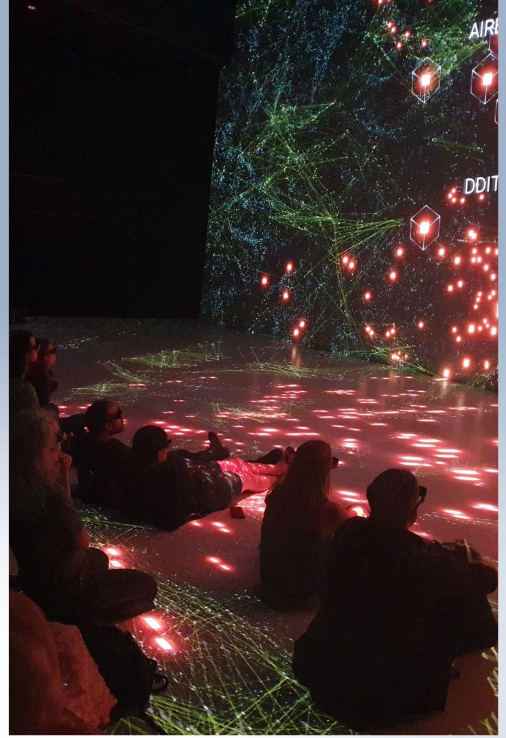
Since 2023, he has co-hosted the Visualizing Complexity Science Workshop with Liuhuaying Yang, held at the Complexity Science Hub in Vienna.

He is the author of the forthcoming book, **Mapping Knowledge Across Time, Seven Books that Visualized the World** (CRC Press 2026)

Data Vis & Exploration

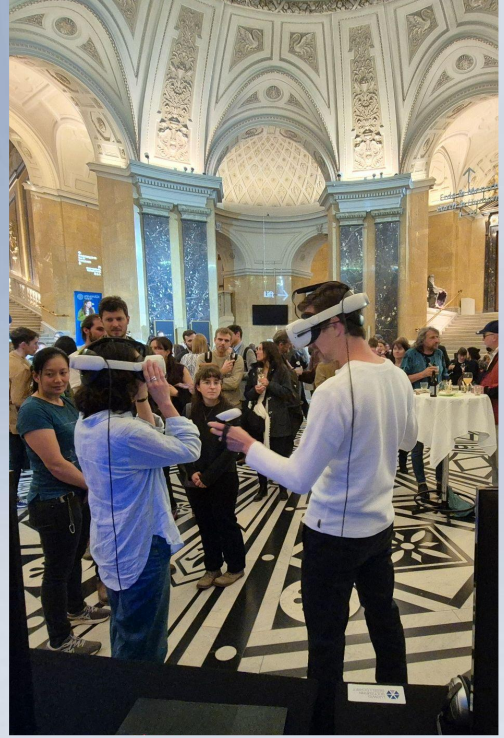
at the

LUDWIG BOLTZMANN INSTITUTE
Network Medicine
at the University of Vienna



Visualizing complex systems

Ars Electronica Center
DeepSpace8k | 2022-2025



Data Stories in VR

Environmental Dialogue
Natural History Museum | 2025

Conference Panel

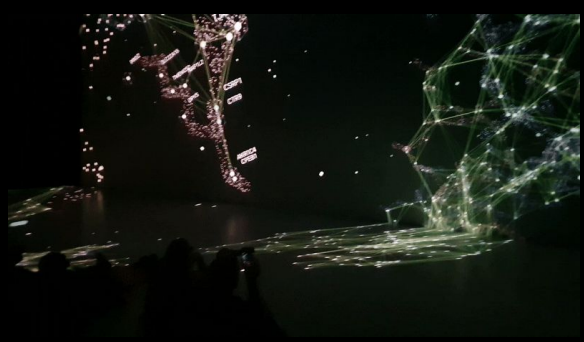
on XR Vis - Frameworks
IEEEVis | 2025

Visualizing Complex Systems | Ars Electronica Center Linz

- **Interactive (VR) vis of systems**
  - Biology : protein-protein interactions
  - Economy : stock market
  - Engineering : Powergrid
  - Culture : Memes
  - Transportation : Flight routes

- **Showcing network principles and phenomena**
  - Robustness
  - Node influence
  - Distribution
  - Network types

  ...



Short scenes from **“Connected - how the world is more than the sum of its parts”** | AEC Deepspace8k, Linz; AT | 2023

Data Stories in VR | Natural History Museum Vienna, AT

Conference Panel | IEEEVis 2025 Vienna, AT

Nov 2 - 7 | 2025

~1100 international researchers and practitioners
To discuss and showcase newest advances

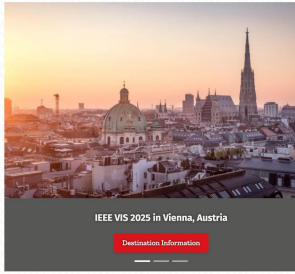
Leading forum on visualization and visual analytics

Highly Interdisciplinary - Covering topics on :
Information Visualization (InfoVis), Scientific Visualization (SciVis), and Visual Analytics (VAST) to emerging areas like AI/ML in viz, XR, data storytelling, and human factors

Program included :
Full-paper sessions, short papers, posters, tutorials, panels, workshops, competitions, Austrian pavilion, Arts & Science exhibition, ...

VIS2025

The premier forum for advances in visualization and visual analytics



[IEEE VIS Panel] TALK, TRY, TELL: Challenges and Opportunities for Theory-Grounded Data Visualization in Extended Reality

Andreas Bueckle[1], Christiane V. R. Hütter[2,3], Sebastian Pirch[2], Felix Müller[2,3], Philipp Friedrich[2], Martin Chiettini[3], Jörg Menche[2,3,4,5], Katy Börner[1,6]

[1] Department of Intelligent Systems Engineering, Luddy School of Informatics, Computing, and Engineering, Indiana University, Bloomington, IN, USA
[2] Ludwig Boltzmann Institute for Network Medicine, University of Vienna, Vienna, Austria
[3] Department of Structural and Computational Biology, Max Perutz Labs, University of Vienna, Vienna, Austria
[4] CeMM Research Center for Molecular Medicine of the Austrian Academy of Sciences, Vienna, Austria
[5] Faculty of Mathematics, University of Vienna, Vienna, Austria
[6] CIFAR MacMillan Multiscale Human, Canadian Institute for Advanced Research (CIFAR), Toronto, ON, Canada

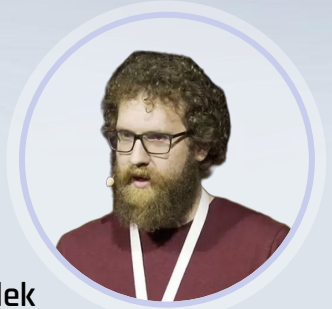
Panellists and Domain Experts | IEEEVis 2025 Vienna, AT

Niklas Elmqvist
Prof | Aarhus University
HCI and Ubiquitous Analytics

Hannes Kaufmann
Full Prof | TU Vienna
VR / AR / Mixed Reality Lab

Chris Bryan
Ass. Prof | Arizona State University
Visual Analytics, Human-Centered Design

Renata Raidou
Assoc. Prof | TU Vienna
Data Analytics + Physicalization

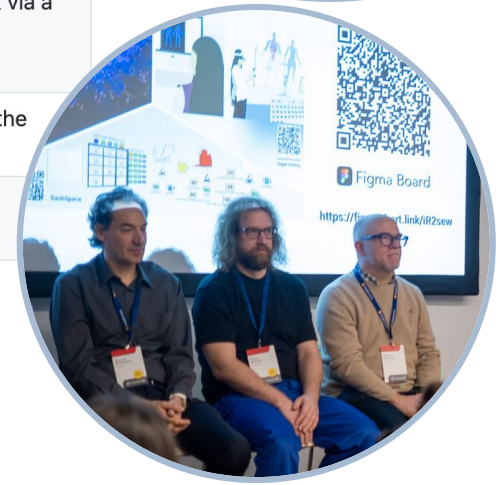


Peter Mindek
Co-Founder / CTO | Nanographics
Scientific High-End Visualizations, 3D, Real-Time

“TALK, TRY, TELL” | IEEEVis 2025 Vienna, AT

“TALK, TRY, TELL” | IEEEVis 2025 Vienna, AT

Starts at [CET]	Duration [mins]	Activity	Description
11:15 AM	5	Introduction	Organizers Bueckle and Hütter provide a brief intro to the goals of the panel
11:20 AM	30	TALK	Lightning talks (5 mins per speaker and 1 min for transitions) with shared slide deck
11:50 AM	20	Panel discussion	Following the lightning talks, attendees (and panelists) will be able to ask (and answer) questions
12:10 PM	20	TRY	The audience explores three different VR experiences and then gives feedback via a digital whiteboard. Enough VR equipment will be available accommodate large crowds, and VR headsets will stream to large screens with narration.
12:30 PM	15	TELL	Debriefing: The most relevant audience comments, questions, and ideas from the board will be discussed.
12:45 PM	1	Group photo	Panelists and organizers take a photo on stage.



Vivid Discussions! | IEEEVis 2025 Vienna, AT

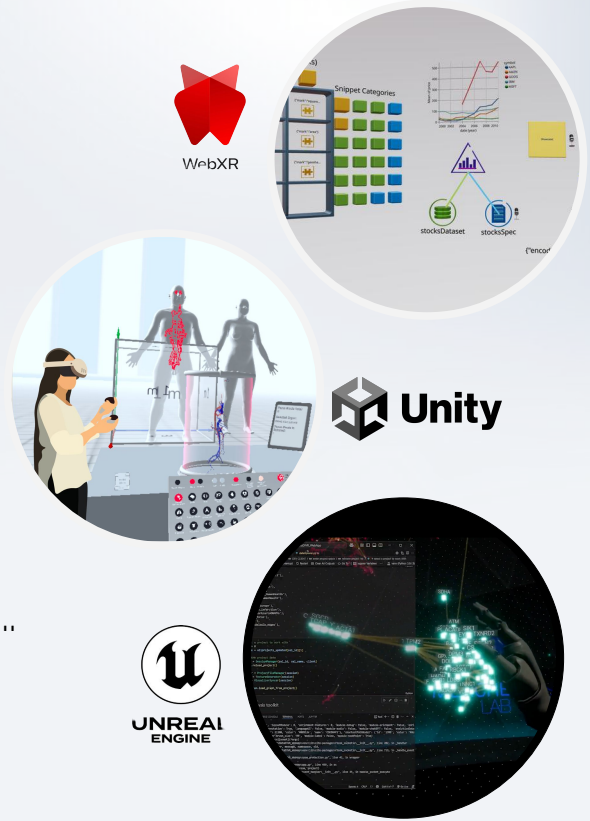
Future Directions | IEEEVis 2026 !

- **Discussion points + key takeaways**
  - Tool Landscape and their benefits given their tech-specifics
  - Theory grounded Frameworks for added value - beyond “cool demos”
  - Hybrid Interfaces - operations unified with 2D screen + 3D embodied
  - Re-Thinking! (not) in categories - Digital + Physical rather than vs.

  - Work to build upon

    e.g. introduced by panellists, organizers and more “set the stage”

    – HRA Organ gallery, DataDiVR, IATK, Dashspace, Physicalization..



Thanks to all Organizers! | IEEEVis 2025 Vienna, AT

More about the panel here: https://cns-iu.github.io/data-vis-xr-panel-2025/

Andreas “Andi” Bueckle
Research Lead | CNS

Christiane Hütter
Predoctoral Fellow | LBI-NetMed

Katy Börner
Director | CNS

Jörg Menche
Director | LBI-NetMed

Felix Müller
Data Scientist | LBI-NetMed

Martin Chiettini
Tech & IT | LBI-NetMed

Philipp Friedrich
Data Scientist | LBI-NetMed

Sebastian Pirch
3D Artist | LBI-NetMed

Biomedical Data Science Summer School and Conference

Donát Köller

Institute of Biostatistics and Network Science
2025

SEMMELWEIS
UNIVERSITY 1769

Biomedical Data Science Summer School 2025

- **From 28 July to 5 August**
  Main focus areas of the curriculum:
  - Biomedical Network Science
  - Medical Data Visualization
  - Machine Learning on Tabular Medical Data
  - Deep Learning on Unstructured Medical Data
- 73 participants from 11 countries working together on group projects

FACULTAS STOMATOLOGICA
1955
SEMMELWEIS
EGYETEM 1769
FOGORVOSTUDOMÁNYI KAR
FACULTY OF DENTISTRY
FAKULTÄT FÜR
ZAHNHEILKUNDE

Lecturers and Courses
Katy Börner
Kosmas Kepesidis
Ludwig Maximilian University of Munich
DEEP LEARNING FOR UNSTRUCTURED MEDICAL DATA
András Gézsi
Budapest University of Technology and Economics
MACHINE LEARNING FOR TABULAR MEDICAL DATA
Gergely Palla
Eötvös Loránd University, Semmelweis University
BIOMEDICAL NETWORK SCIENCE
Institute of Biostatistics and Network Science
Dr. Roland Molontay, Director

Donát Köller
PhD student

SEMMELWEIS

SEMMELWEIS
UNIVERSITY 1769

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Program

	7/28 MONDAY	7/29 TUESDAY	7/30 WEDNESDAY	7/31 THURSDAY	8/1 FRIDAY	8/2 SATURDAY	8/3 SUNDAY	8/4 MONDAY	8/5 TUESDAY
8:00 AM	**Registration**								
8:45 AM	**Opening**								
9:00 AM	**ML for Tabular Data**	**Biomedical Network Science**	**DL for Unstructured Data**	**Biomedical Network Science**	**DL for Unstructured Data**	**Social program: Day trip to Visegrád**		Preparation, consultation	Preparation, consultation
10:30 AM	Coffee break	Coffee break	Coffee break	Coffee break	Coffee break				
11:00 AM	**ML for Tabular Data**	**Biomedical Network Science**	**ML for Tabular Data**	**DL for Unstructured Data**	**ML for Tabular Data**				
12:30 PM	Lunch break	Lunch break	Lunch break	Lunch break	Lunch break			Lunch break	Lunch break
2:00 PM	**Biomedical Network Science**	**ML for Tabular Data**	**Biomedical Network Science**	**ML for Tabular Data**	**DL for Unstructured Data**			**Medical Data Viz**	**Presentation**
3:30 PM	Coffee break	Coffee break	Coffee break	Coffee break	**Social program: Budapest City Tour**			Coffee break	
4:00 PM	**Biomedical Network Science**	**ML for Tabular Data**	**KEYNOTE Krausz & Kepesidis**	**DL for Unstructured Data**				**Medical Data Viz**	Group photo 📷
5:30 PM			Deadline to indicate data preferences for group formation						**Dinner**

Lecturers and Courses

Katy Börner

Indiana University Bloomington

MEDICAL DATA VISUALIZATION

Kosmas Kepesidis

Ludwig Maximilian University of Munich

DEEP LEARNING FOR UNSTRUCTURED MEDICAL DATA

András Gézsi

Budapest University of Technology and Economics

MACHINE LEARNING FOR TABULAR MEDICAL DATA

Gergely Palla

Eötvös Loránd University, Semmeweis University

BIOMEDICAL NETWORK SCIENCE

Plenary Speaker(s)

Ferenc Krausz

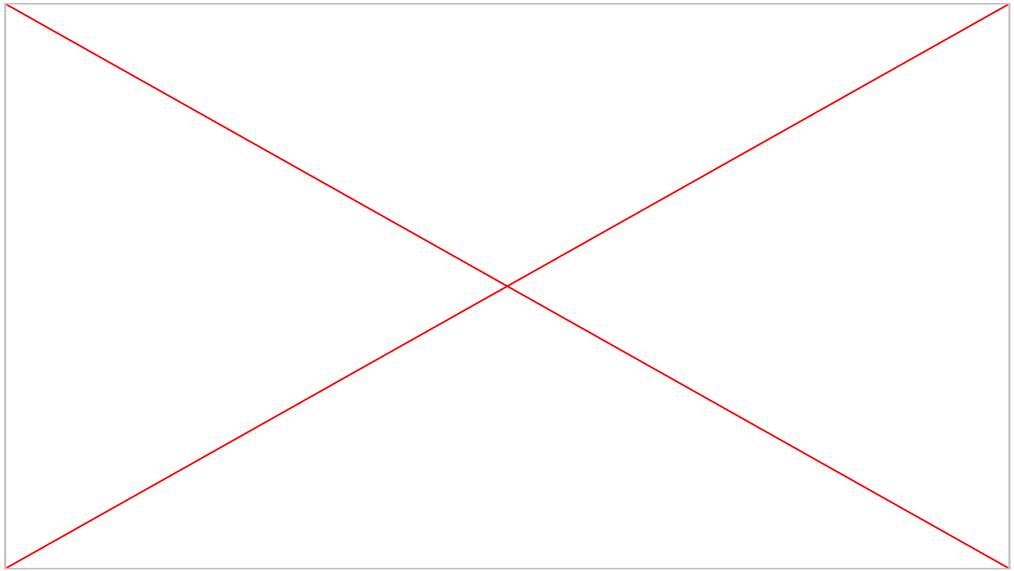
Max Planck Institute of Quantum Optics,
Ludwig Maximilian University of Munich,
Center for Molecular Fingerprinting,
John von Neumann Institute for Data Science,
Semmelweis University

Kosmas Kepesidis

Max Planck Institute of Quantum Optics,
Ludwig Maximilian University of Munich,
Center for Molecular Fingerprinting,
John von Neumann Institute for Data Science, Semmelweis University

Biomedical Data Science Conference 2025

- 83 participants from 14 countries



Program

	8/6 WEDNESDAY	8/7 THURSDAY	8/8 FRIDAY
8:15 AM	**Registration** (8:15-9:00)		
9:00 AM	**Opening remarks**	**Registration** (8:45-9:20)	**Keynote: Péter Horváth**
9:30 AM	**Keynote: Katy Börner**	**Session 4 -** Computational and Mathematical Biology I.	
10:20 AM	Coffee break	Coffee break	**Session 8** - NLP in Health
10:50 AM	**Session 1** Biomedical Machine Learning I.	**Session 5 -** Comp & Math Bio II.	Coffee break
12:30 PM	Group photo Lunch break	**Lightning Session** Lunch break	**Session 9** - AI in COVID and Cancer Research
1:50 PM	**KN: Albert-László Barabási**	**KN: Pál Maurovich-Horvat**	**Closing remarks and awards**
2:40 PM	**Session 2 -** NetBio I.	**Session 6** - Medical Imaging	Lunch break
3:20 PM	Coffee break	Coffee break	
3:50 PM	**Session 3** - Network Science in Biomedicine (NetBio) II.	**Session 7** - Biomedical ML II.	
5:30 PM		**Poster Session** (1st floor)	
6:00 PM			
6:30 PM	**Exhibition** by **Katy Börner** and **Welcome Reception**	**Gala dinner**	

KEYNOTE SPEAKERS

Katy Börner

Indiana University
Bloomington

Albert-László Barabási

Northeastern University,
Harvard Medical School

Pál Maurovich-Horvat

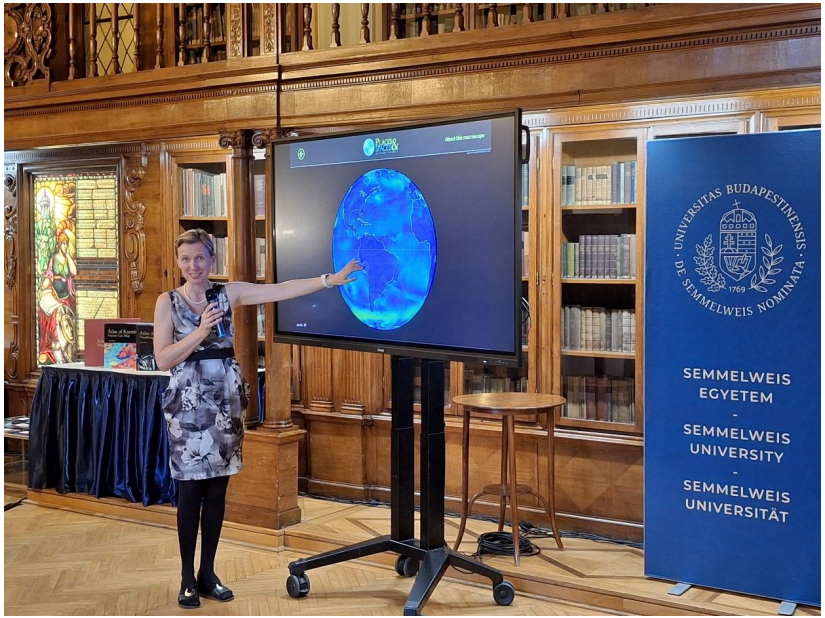
Semmelweis University

Péter Horváth

Helmholtz Munich,
University of Szeged

Opening ceremony

Keynote talks

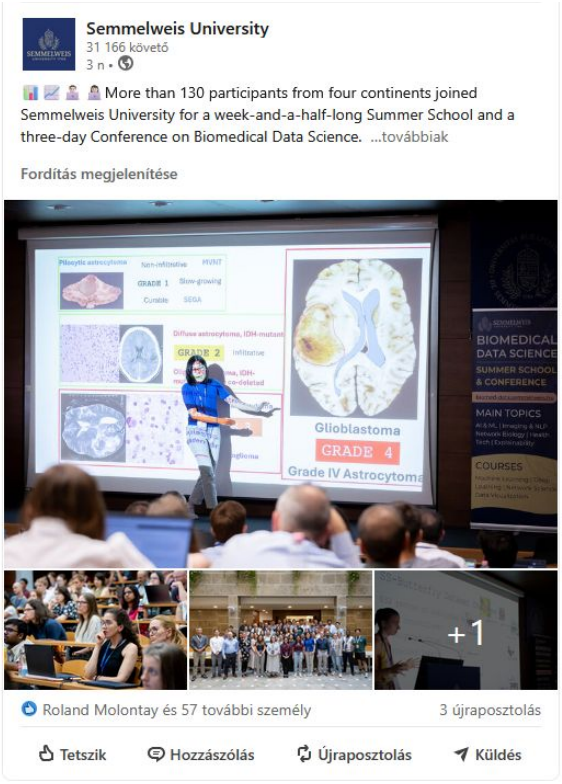


Exhibition & Reception

Poster section

RUHATÁR

Social media “in-house”



Social media “out-of-house”

Kiss Tamás • Első
Medical Doctor Phd az Semmelweis University
1 h •

I had the pleasure of participating in the Biomedical Data Science Summer School and Conference, organized by the newly launched Institute of Biostatistics and Network Science at Semmelweis University.

The week was packed with inspiring content — excellent presentations on data science, machine learning, network science, and neural networks, as well as hands-on project work that allowed us to put theory into practice.
We were fortunate to learn from world-class keynote speakers:
- Katy Börner - Indiana University Bloomington
- Albert-László Barabási - Northeastern University, Harvard Medical School
- Pál Maurovich-Horvat - Semmelweis University
- Péter Horváth - Helmholtz Munich, HUN-REN BRC Szeged

A special thanks to the organizers for putting together such a high-quality and inspiring event!

I'm also proud to share that our team received an Honorable Mention for our group project, where we developed a classification model on the BloodMNIST dataset. It was a great experience working alongside:
Nora Juhasz
Moritz Jung
Krisztián Vribék
NIYONSHUTI Emmanuel

Looking forward to applying what we've learned and continuing to explore the fascinating intersections of biomedicine and data science.

Fordítás megjelenítése

Ön és 23 további személy

Miguel Azevedo • Második
Doctoral Researcher @ Tampere University
1 h •
+ Követés

Last week between August 6 and 8, I attended the Biomedical Data Science Conference at the Semmelweis University in Budapest, Hungary. It was a really insightful experience and I got to pretend I was smart ...továbbiak

Fordítás megjelenítése

Ön és 35 további személy 2 hozzászólás

Arafat Md Easin • Első
Doctoral Fellow, ELTE | Graduate TA | SH Awardee | AI Researcher | ML En...
1 h •

What an incredible two weeks at BIOMED-DATA 25!

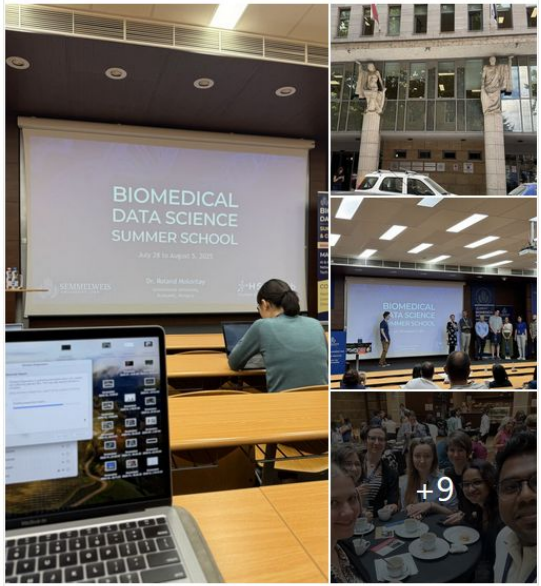
I'm still buzzing with excitement after attending the Biomedical Data Science

Arafat Md Easin • Első
Doctoral Fellow, ELTE | Graduate TA | SH Awardee | AI Researcher | ML En...
1 h •

What an incredible two weeks at BIOMED-DATA 25!

I'm still buzzing with excitement after attending the Biomedical ...továbbiak

Fordítás megjelenítése



Ön és 37 további személy 5 hozzászólás

Gayathri Sunil • Első
Incoming MSCS student @ UMass Amherst | ex-Technology Associate at ...
1 h •

I am excited to share that I won the Best Poster Presentatic
Biomedical Data Science Conference 2025!

I had the privilege of attending the BIOMED-DATA '25 Sum
Conference at Semmelweis University- an immersive two-
into network science, AI, and machine learning, and its pot
revolutionise the biomedical field.

From thought-provoking lectures and keynote speeches b
Laszlo Barabasi and Prof. Katy Börner, to collaborating on
with brilliant researchers from around the world, the experi
my perspective and inspired fresh ideas.

A special shoutout to Roland Molontay and the organising
together such a well-rounded and enriching experience!

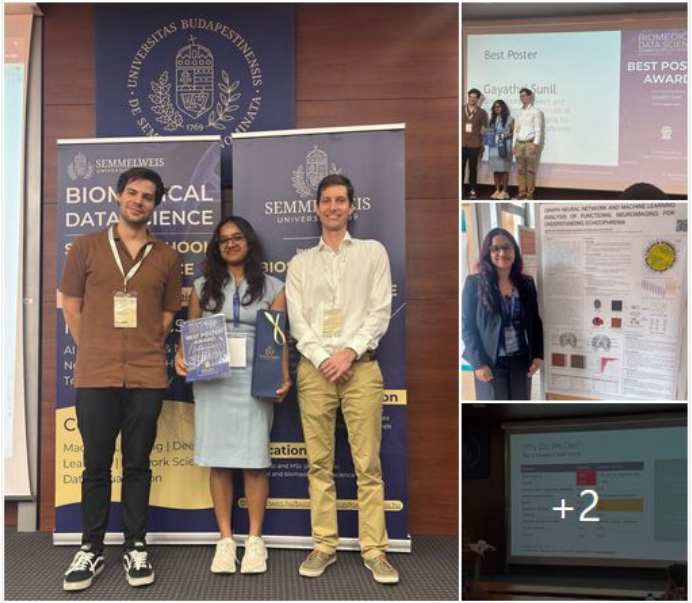
#BiomedicalDataScience #AIinHealthcare

Fordítás megjelenítése

Gayathri Sunil • Első
Incoming MSCS student @ UMass Amherst | ex-Technology Associate at ...
1 h •

I am excited to share that I won the Best Poster Presentation Award at the Biomedical Data Science Conference 2025! ...továbbiak

Fordítás megjelenítése



Ön és 228 további személy 56 hozzászólás

Monika Hujter • Második
Data Scientist at Hiflylabs
2 h •

+ Követés

In our mind, the future of healthcare innovation lies in the synergy between deep clinical expertise and cutting-edge data science.

Unstructured data is one of the biggest challenges in healthcare today, creating a critical bottleneck for effective analysis. Legacy manual methods are a costly time sink, compromising both the speed and reliability of crucial data insights.

In our joint study with Semmelweis University, to which Zsofia Prager and I contributed, we achieved >95% accuracy in structuring and standardization. The LLMs even recognized parameter instances that had not been identified by manual labeling.

I'll be sharing some of the findings with Zsolt Bagyura, MD, PhD at Semmelweis University's Biomed Data 25 on Friday. If you're curious about how AI is shaping healthcare, let's chat!

Fordítás megjelenítése

Ön és 84 további személy 1 hozzászólás • 4 újraposztolás

Press coverage “in-house”

Press coverage “out-of-house”

behaviour
A HR MAGAZIN

ITBUSINESS

2026 goals

Objectives:
- Increased number of participants
- More parallel and expanded conference sessions for the increased activity
- Involvement of **3 new international keynote speakers**/experts (AI, networks, translational research)
- New modules, stronger workshops, involvement of partner institutions
- Possible **digital conference publication** (ISBN, DOI)

Schedule and venue:
- **Summer School & Conference:** 6-19 July 2026
- **Venue options:**
  Basic Medical Science Center (EOK) building
  Expected to be hybrid (online participation possible)

Sponsorship
- Establishing a stable and sustainable long-term funding model

Donát Köller
PhD student

Thank you for your attention and stay tuned for more info!

Conference page: https://www.biomed-data.semmelweis.hu/

General email: biostat@semmelweis.hu

Organizing Committee:

- Dr. Roland Molontay (director)
  molontay.roland@semmelweis.hu
- Enikő Szvák (executive assistant)
  szvak.eniko@semmelweis.hu

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Questions

- All
  - What was the last experience at a data vis workshop that surprised you?
  - There is a standard format for conferences? How can we innovate in this space?
  - What was the biggest roadblocks you encountered when organizing your workshops?
  - How do you enable folks to take something shared and concrete with them?
  - What kinds of audiences are you serving?
  - Where do you see data vis go in the next 10 years?
  - In your experience, what are the major differences between organizing an event within an event, e.g., a panel, v. organizing a whole conference?
  - Not everything can be visualized. What other senses do you use/can you use for events?
  - Where does the realm of “cool” end and the realm of “i want to use this seriously” start?
  - What are your goals/plans for IEEE VIS 2026?
- Chris: You demo VR to many users. For many users, networks are harder to read than other vis types. How do you overcome the inherent opacity of network layouts when demoing these to users.
- Donat: How do you organize researchers that might diverging interests into one conference so everyone can take something away?
- Liuhuaying/Paul:
  - Many skills go into data vis. How do you make sure teams have all the skills necessary that are needed to complete the challenge?
  - Few fields have changed as much as journalism in the past 20 years. How do you account for this?

24h Envisioning Intelligences
event slides and video recordings:

Call for exhibit submissions:
https://scimaps.org/call-for-submissions

ENVISIONING INTELLIGENCES

Aurora Mititelu