



# VCBM 2021

11th EG Workshop on Visual Computing for Biology and Medicine


[VCBM 2021](#)
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[Venue](#)


## Program

Here you can find the conference program and the list of accepted papers. You can also download the program in [a regular A4 format](#) or in [a booklet format for printing](#) (print on A4 for A5 booklet).

	Wed 22	Thu 23	Fri 24
9:00		Registration	Registration
9:30		<a href="#">Session 2</a>	<a href="#">Session 5</a>
10:00		<a href="#">Session 2</a>	<a href="#">Session 5</a>
10:30		<a href="#">Session 2</a>	<a href="#">Session 5</a>
11:00		Break	Break
11:30		<a href="#">Session 3</a>	Panel
12:00		<a href="#">Session 3</a>	Panel
12:30		<a href="#">Session 3</a>	Panel
13:00		Lunch	Lunch
13:30		Lunch	Lunch
14:00	Registration	Lunch	Lunch
14:30	Opening	<a href="#">Session 4</a>	<a href="#">Session 6</a>
15:00	<a href="#">Keynote</a>	<a href="#">Session 4</a>	<a href="#">Session 6</a>
15:30	<a href="#">Keynote</a>	<a href="#">Session 4</a>	<a href="#">Session 6</a>
16:00	Break	Break	Break
16:30	<a href="#">Session 1</a>	Image Contest	Capstone
17:00	<a href="#">Session 1</a>	Poster Lightning Talks	Capstone
17:30	<a href="#">Session 1</a>	Poster Session	Awards and Closing
18:00	Opening Reception	<a href="#">Poster Session</a>	
18:30	Opening Reception		
19:00	Opening Reception	Dinner	

### Full Program

#### Session 1: Getting an overview in bio (and medicine)

Session chair: **Barbora Kozlíková**

(Wednesday 16:30-18:00)

An Exploration of Practice and Preferences for the Visual Communication of Biomedical Processes (Full paper)

*Laura Garrison, Monique Meuschke, Jennifer Fairman, Noeska Smit, Bernhard Preim, Stefan Bruckner*

Interactive analysis for large volume data from fluorescence microscopy at cellular precision (Invited journal paper)

*Yong Wan, Holly A. Holman, Charles Hansen*

<https://doi.org/10.1016/j.cag.2021.05.006>

### Important Dates

Workshop dates:	22. - 24. 9. 2021
Early bird registration:	31. 8. 2021
FP & SP submission:	9. 7. 2021
FP & SP notification:	10. 8. 2021
FP & SP camera-ready:	27. 8. 2021
Posters submission:	13. 8. 2021
Posters notification:	27. 8. 2021
Posters final version:	10. 9. 2021
Image contest:	12. 9. 2021

### Announcements

[See our Image Contest gallery](#)  
 Full program is now available  
 Registration is now open  
[EG VCBM 2021 Call for Papers](#)  
[EG VCBM 2021 Call for Posters](#)  
[EG VCBM 2021 Image Contest](#)

### Previous Workshops

[EG VCBM 2020](#)  
[EG VCBM 2019](#)  
[EG VCBM 2018](#)  
[EG VCBM 2017](#)  
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[EG VCBM 2008](#)

### Sponsors



**CECAM-FR-MOSER**  
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Polar space based shape averaging for star-shaped biological objects (Short paper)

*Karina Ruzaeva, Katharina Nöh, Benjamin Berkels*

Vologram: An Educational Holographic Sculpture for Volumetric Medical Data Physicalization (Short paper)

*Daniel Pahr, Hsiang-Yun Wu, Renata Georgia Raidou*

## Session 2: Shooting rays of sorts through people

**Session chair: Thomas Schultz**

**(Thursday 9:30-11:00)**

inCCsight: A software for exploration and visualization of DT-MRI data of the Corpus Callosum (Invited journal paper)

*Thais Caldeira, Paulo Rogério Julio, Simone Appenzeller, Leticia Rittner*

<https://doi.org/10.1016/j.cag.2021.07.012>

PREVIS: Predictive visual analytics of anatomical variability for radiotherapy decision support (Invited journal paper)

*Katarína Furmanová, Ludvig P. Muren, Oscar Casares-Magaz, Vitali Moiseenko, John P. Einck, Sara Pilskog, Renata Georgia Raidou*

<https://doi.org/10.1016/j.cag.2021.04.010>

Strategies for Generating Multi-Time Frame Localization of Cardiac MRI (Short paper)

*Samin Sabokrohiyeh, Kathleen Ang, Faramarz Samavati*

Visual Assessment of Growth Prediction in Brain Structures after Pediatric Radiotherapy (Short paper)

*Caroline Magg, Laura Toussaint, Ludvig P. Muren, Danny Indelicato, Renata Georgia Raidou*

## Session 3: Let's look into your brains

**Session chair: Bernhard Preim**

**(Thursday 11:30-13:00)**

The Role of Depth Perception in XR from a Neuroscience Perspective: A Primer and Survey (Full paper)

*Vetle Hushagen, Gustav Tresselt, Noeska Smit, Karsten Specht*

Reducing Model Uncertainty in Crossing Fiber Tractography (Full paper)

*Johannes Gruen, Gemma van der Voort, Thomas Schultz*

Interactive Multimodal Imaging Visualization for Multiple Sclerosis Lesion Analysis (Full paper)

*Sherin Sugathan, Hauke Bartsch, Frank Riemer, Renate Gruner, Kai Lawonn, Noeska Smit*

## Session 4: The path that blood takes

**Session chair: Ingrid Hotz**

**(Thursday 14:30-16:00)**

Automatic Cutting and Flattening of Carotid Artery Geometries (Full paper)

*Pepe Eulzer, Kevin Richter, Monique Meuschke, Anna Hundertmark, Kai Lawonn*

2.5D Geometric Mapping of Aortic Blood Flow Data for Cohort Visualization (Full paper)

*Benjamin Behrendt, David Pleuss-Engelhardt, Matthias Gutberlet, Bernhard Preim*

Automatic Animations to Analyze Blood Flow Data (Short paper)

*Vikram Apilla, Benjamin Behrendt, Kai Lawonn, Bernhard Preim, Monique Meuschke*

Shading Style Assessment for Vessel Wall and Lumen Visualization (Short paper)

*Kai Ostendorf, Domenico Mastrodicasa, Kathrin Bäuml, Marina Codari, Valery Turner, Martin Willeminck, Dominik Fleischmann, Bernhard Preim, Gabriel Mistelbauer*

## Session 5: From the spatial to the abstract

**Session chair: Renata Georgia Raidou**

**(Friday 9:30-11:00)**

Estimating depth information of vascular models: A comparative user study between a virtual reality and a desktop application (Invited journal paper)

*Florian Heinrich, Vikram Apilla, Kai Lawonn, Christian Hansen, Bernhard Preim, Monique Meuschke*

<https://doi.org/10.1016/j.cag.2021.05.014>

Multiple Scale Visualization of Electronic Health Records to Support Finding Medical Narratives (Full paper)

*Sanne van der Linden, Jarke J. van Wijk, Mathias Funk*

*Inria*

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للعلوم والتقنية  
King Abdullah University of  
Science and Technology



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PerSleep: A Visual Analytics Approach for Performance Assessment of Sleep Staging Models (Full paper)

*Humberto Garcia Caballero, Alberto Corvo, Fokke van Meulen, Pedro Fonseca, Sebasitaan Overeem, Jarke J. van Wijk, Michel Westenberg*

## Session 6: Conspiring to cut people open

**Session chair: Noeska Smit**

**(Friday 14:30-16:00)**

AR-Assisted Craniotomy Planning for Tumour Resection (Full paper)

*Joost Wooning, Mohamed Benmahdjoub, Theo van Walsum, Ricardo Marroquim*

Projection Mapping for In-Situ Surgery Planning by the Example of DIEP Flap Breast Reconstruction (Full paper)

*Jana Martschinke, Vanessa Klein, Philipp Kurth, Klaus Engel, Ingo Ludolph, Theresa Hauck, Raymund Horch, Marc Stamminger*

A collaborative virtual reality environment for liver surgery planning (Invited journal paper)


*Vuthea Chheang, Patrick Saalfeld, Fabian Joeres, Christian Boedecker, Tobias Huber, Florentine Huetti, Hauke Lang, Bernhard Preim, Christian Hansen*

<https://doi.org/10.1016/j.cag.2021.07.009>


## Posters Session

**(Thursday 17:00-18:30)**


See also our [poster gallery](#).

 On Data-related and Methodological Challenges in Analysis of Structures From Population-based MRIs: An Obstructive Sleep Apnea Application


*Tatyana Ivanovska, Amro Daboul, Oleksandr Kalentev*

 NetLas: Toward an integrated atlas for exploration and analysis of network medicine data

*Alessia Palleschi, Marco Angelini*

 Skin lesion diagnosis for an early inspection of melanoma skin cancer

*Jinen Dagherir, Lotfi Tlig, Moez Bouchouicha, Mounir Sayadi*

 Virtual Reality for Studying Cardiovascular Anatomy by Assembling Elements

*José Juan Reyes-Cabrera, José Miguel Santana-Núñez, Agustín Trujillo-Pino, Manuel Maynar, Miguel Ángel Rodríguez-Florida*

## Panel Discussion

**Session chairs: Christina Gillmann and Noeska Smit**

**(Friday 11:30-13:00)**

Open Challenges in Biological and Medical Visualization

*Bernhard Preim, Thomas Wischgoll, Jan Byška, Michael Krone*