Prof. Dr. Bernhard Preim - Fakultät für Informatik, University of Magdeburg, Germany
Academic titles: Prof. Dr.-Ing. habil.
Date/Place of birth: 12.10.1969 Magdeburg

Professional Data

1989 - 1994	Computer Science Studies (Diplom-Informatiker), University of Magdeburg, Germany
1994 - 1998	Research Associate at the Department of Simulation and Graphics in Magdeburg
1998	Dissertation defense (Dr.-Ing.), University of Magdeburg
1999	Assistant Professor at CeVis (Center for Complex Systems and Visualization) and head of the group „Computer Assisted Liver Surgery Planning“ at MeVis (Center for Medical Diagnosis System and Visualization) Bremen
2002	Habilitation; Venia Legendi: Informatik, University Bremen
Since 2003	Full Professor (C4) Applied Informatics / Visualization, Otto-von-Guericke University of Magdeburg
since 2012	Vice-Dean of the Computer Science Faculty
2003 - 2012	Guest Professor (three to four weeks per year), University of Bremen

Awards & Honors: M&C2002, Best Paper Award (2002), Highly Cited Article (Top 1% within its fields), Essential Science Indicator des ISI Web of Knowledge fort he article „Analysis of vasculature for liver surgical planning” (2004), Bildverarbeitung für die Medizin, Best Paper Award (2007), Europgraphics Medical Price – 3rd Price (2009), Eurographics Medical Price – 1st price (2011), Eurographics Medical Price – 2nd price (2013), Otto-von-Guericke Forschungspreis (2012)

Memberships: ACM (*Association for Computing Machinery*) and the German Chapter of the ACM (Vice-Chairperson (2001-2003), Past Vice-Chairperson (2003-07))
Chair of the Scientific Advisory Board of ICCAS (International Competence Center on Computer-Assisted Surgery, since 2003) and of CURAC (Gesellschaft für Computer- und Roboterassistierte Chirurgie, 2004-2007), member of the board of CURAC (since 2007), first vice-president of CURAC (2009-13), president (2013-15) GI – Gesellschaft für Informatik (Association for Informatics), GI – Member of the expert committee *Graphical Data Processing* , GI – Founder and speaker of the Medical Visualization Group (2003-2012), Founding member of the Steering Committee of the Eurographics Workshop on Visual Computing in Biology and Medicine, Appointment Committee *Computer Assisted Surgery*, University of Leipzig, 2005 and 2011

Associate Editor: IEEE Transactions on Medical Imaging
Reviewer: *Journals*: IEEE Transactions on Visualization and Graphics, IEEE Computer Graphics and Applications, ACM Transactions on Graphics, Computer Graphics Forum, Computers in Biology and Medicine, Academic Radiology, NeuroImage, *Scientific organizations:* The Austrian Science Found (FWF), Netherlands Organization for Scientific Research (NWO), Österreichische Forschungsförderungsgesellschaft mbH, NSERC (Kanada)

Program committees: Simulation and Visualization (Co-Chair: 1998, 2005-2007); Bildverarbeitung für die Medizi (since 2004); CURAC-Jahrestagung (since 2004, Chair: 2010), Smart Graphics; Mensch und Computer (2002-2014); Eurographics Workshop on Visual Computing in Biomedicine (Co-Chair: 2008, 2010); EuroVis (2004-2010, Co-Chair: 2013); IEEE Visualization (2003-2007, 2011, 2015); Vision, Modelling and Visualization (2005-2012), IEEE BioVis (2011-2013), IEEE Pacific Vis

International and National Collaborations: Fraunhofer MEVIS, Bremen; Innovation Center Computer Assisted Surgery (ICCAS), Leipzig; Technical University of Eindhoven, Technical University of Delft, University of Bergen, Pompeu Fabra University of Barcelona, Institute of Computer Graphics and Algorithms, Vienna University of Technology; VRVis Research Center for Virtual Reality and Visualization, Ltd., Vienna; Herz-Zentrum Leipzig, Zuse-Institute Berlin

Grant support:

Finished

DFG: „Entwicklung und Validierung von Visualisierungs- und Interaktionstechniken bei der Operationsplanung am Beispiel der onkologischen Leberchirurgie“ (PE 199/9-1 und 9-2), beantragt gemeinsam mit der Universitätsklinik Essen (BR 483/5-1, BR 483/5-2).

(Staff: ½ BAT IIa, funds: 170.000 €, duration: 2000-2005)

Bayerische Forschungsstiftung: „Visualization for Planning Minimally-Invasive Surgary – Computer-unterstützte Therapieplanung". Staff: 1 BAT IIA, funds: 143.000 € of 1.0 Mio. €, duration 2002-2005

BMBF: "EXIST-Gründerstipendium Dornheim Medical Images – Softwareunterstützung für die Operationsplanung in der HNO-Chirurgie",
Staff: 3 Stipendiaten, funds: 92.400 €, duration: 2008-2009

DFG: „Bildanalyse und Visualisierung für die computergestützte Planung und intraoperative Unterstützung von HNO-chirurgischen Eingriffen", (Pr 660/3-1, Pr 660/3-2)
Staff: 2x BAT IIa, funds: 300.000 €, duration: 2004-2010

LSA: „MOBESTAN Modellierung und Beeinflussung von Strömungen in Aneurysmen". Staff: 0.5 TÖVD 13, duration: 2008-2010

BMBF: „Liver Surgery Training", part of „FUSION - Future Environment for Gentle Liver Surgery Using Image-Guided Planning and Intra-Operative Navigation"
Staff: 1.5 x BAT IIa, funds: 400.000 € of 15 Mio.€, duration: 2005-2011

BMBF: Verbundvorhaben FUSION – SOMIT Querschnittprojekt "Ausbildung und Training",
Staff: 0,5 BAT IIa, funds 61.200 €, duration: 2007-2011

DFG: „Efficient Visual Analysis of Dynamic Medical Image Data", part of DFG-SPP 1335,
Staff: 1 BAT IIa, funds 180.000 €, duration 2008-2013

LSA: Entwicklung eines Systems zur intuitiven Echtzeit-Exploration dreidimensional rekonstruierter Endoskopieaufnahmen, funds 50.000 €, duration 2012-2013

BMBF: Verbundvorhaben Surgery Tube - Web 2.0 Technologien in der Qualifizierung von Chirurgen (Teilprojekt Didaktische Konzeption und webbasierte 3D-Visualisierungen), Staff: 1.5 TÖVD 13 duration*: 2010 – 2013*

BMBF: Verbundvorhaben: ViERforES (Teilprojekt: Generierung qualitativ hochwertiger 3D-Organmodelle), Staff: 1 TÖVD 13, 2008 – 2013

LSA: Integration von MRT-Daten in die Planung von Neck Dissections, funds 50.000 €, duration 2012-2013

BMBF: „Benutzerschnittstellen für die Interventionellen Radiologie", Teilprojekt im Forschungscampus Stimulate, Staff: ¾ TÖVD 13

BMBF: „Intravaskuläre Bildgebung*",* Teilprojekt im Forschungscampus Stimulate,
Staff: 1/4 TÖVD 13

Current Projects

DFG: „Visual Analytics in Public Health", part of DFG-SPP 1335,
Staff: 1 TÖVD 13, funds 180.000 €, duration 2012-2015

BMBF: „Hämodynamik Tools", Teilprojekt im Forschungscampus Stimulate,
Staff: 1 TÖVD 13, duration 2015-2019

BMBF: „Bildverarbeitung und Visualisierung", Teilprojekt im Forschungscampus Stimulate, Staff: 1/4 TÖVD 13, duration 2015-2019

Most important publications (last five years)

Books:

Bernhard Preim and Charl Botha, Visual Computing in Medicine, Morgan Kaufman, 2013

Bernhard Preim and Raimund Dachselt, Interaktive Systeme, Springer 2010

Journals:

Sylvia Glaßer, Kai Lawonn, Thomas Hoffmann, Martin Skalej, Bernhard Preim:

Combined Visualization of Wall Thickness and Wall Shear Stress for the Evaluation of Aneurysms. *IEEE Trans. Vis. Comput. Graph.* 20(12): 2506-2515 (2014)

Paul Klemm, Steffen Oeltze-Jafra, Kai Lawonn, Katrin Hegenscheid, Henry Völzke, Bernhard Preim: Interactive Visual Analysis of Image-Centric Cohort Study Data. IEEE Trans. Vis. Comput. Graph. 20(12): 1673-1682 (2014)

Steffen Oeltze, Dirk J. Lehmann, Alexander Kuhn, Gabor Janiga, Holger Theisel, Bernhard Preim: Blood Flow Clustering and Applications inVirtual Stenting of Intracranial Aneurysms. IEEE Trans. Vis. Comput. Graph. 20(5): 686-701 (2014)

Jan Kretschmer, Grzegorz Soza, Christian Tietjen, Michael Sühling, Bernhard Preim, Marc Stamminger: ADR - Anatomy-Driven Reformation. *IEEE Trans. Vis. Comput. Graph.* 20(12): 2496-2505 (2014)

Jan Kretschmer, Christian Godenschwager, Bernhard Preim, Marc Stamminger: Interactive Patient-Specific Vascular Modeling with Sweep Surfaces, *IEEE Transactions on Visualization and Computer Graphics* 19 (12): 2828-2837, 2013

Ben Köhler, Rocco Gasteiger, Uta Preim, Holger Theisel, Matthias Gutberlet, Bernhard Preim: Semi-Automatic Vortex Extraction in 4D PC-MRI Cardiac Blood Flow Data using Line Predicates, *IEEE Transactions on Visualization and Graphics* 19(12): 2773-2782, 2013

Kai Lawonn, Tobias Mönch and Bernhard Preim: Streamlines for Illustrative Real-time Rendering. *Computer Graphics Forum* 32(3): 321-330, 2013

Mathias Neugebauer, Kai Lawonn, Oliver Beuing, Philipp Berg and Gabor Janiga and Bernhard Preim: AmniVis - A System for Qualitative Exploration of Near-Wall Hemodynamics in Cerebral Aneurysms, Computer Graphics Forum, 32(3): 251-260, 2013

Mathias Neugebauer, Kai Lawonn, Oliver Beuing, Bernhard Preim: Automatic generation of anatomic characteristics from cerebral aneurysm surface models. Int. J. Computer Assisted Radiology and Surgery 8(2): 279-289 (2013)

Jeanette Mönch, Konrad Mühler, Christian Hansen, Karl-Jürgen Oldhafer, Gregor Stavrou, Christian Hillert and Christoph Logge and Bernhard Preim: The LiverSurgeryTrainer: training of computer-based planning in liver resection surgery, International Journal of Computer Assisted Radiology and Surgery, 8(5): 809-818, 2013

Steven Birr, Jeanette Mönch, Dirk Sommerfeld, Uta Preim, Bernhard Preim: The LiverAnatomyExplorer: A WebGL-Based Surgical Teaching Tool. IEEE Computer Graphics and Applications 33(5): 48-58, 2013

Rocco Gasteiger, Dirk J. Lehmann, Roy van Pelt, Gabor Janiga, Oliver Beuing, Anna Vilanova, Holger Theisel, Bernhard Preim: Automatic Detection and Visualization of Qualitative Hemodynamic Characteristics in Cerebral Aneurysms. *IEEE Transactions on Visualization and Computer Graphics* 18(12): 2178-2187, 2012

Jan Kretschmer, Thomas Beck, Christian Tietjen, Bernhard Preim and Marc Stamminger: Reliable Adaptive Modelling of Vascular Structures with Non-Circular Cross-Sections, *Computer Graphics Forum*, 31(3): 1055-1064, 2012

Steffen Oeltze, Bernhard Preim, Wolfgang Freiler, Helmut Doleisch, Rayk Hillert, Walter Schubert. “Interactive, Graph-based Visual Analysis of High-dimensional, Multi-parameter Fluorescence Microscopy Data in Toponomics”, *IEEE Transactions on Visualization and Graphics* 17(5): 1882-1891, 2011

Rocco Gasteiger, Mathias Neugebauer, Oliver Beuing, Bernhard Preim. “The FlowLens: A Focus and Context Visualization Approach for Exploration of Blood Flow in Cerebral Aneurysms”, *IEEE Transactions on Visualization and Graphics,* 17(5): 2183-2192, 2011

Mathias Neugebauer, Gabor Janiga, Oliver Beuing, Martin Skalej and Bernhard Preim. „Anatomy-Guided Multi-Level Exploration of Blood Flow in Cerebral Aneurysms”, *Computer Graphics Forum*, 30(3): 1041-1050, 2011

Alexandra Baer, Rocco Gasteiger, Douglas Cunningham and Bernhard Preim. “Perceptual Evaluation of Ghosted View Techniques for the Exploration of Vascular Structures and Embedded Flow”, *Computer Graphics Forum*, 30(3): 811-820, 2011

Tobias Mönch, Rocco Gasteiger, Gabor Janiga, Holger Theisel, Bernhard Preim: “Context-aware mesh smoothing for biomedical applications”, *Computers & Graphics* 35(4): 755-767, 2011