



OTTO VON GUERICKE  
UNIVERSITÄT  
MAGDEBURG

**MED**

MEDIZINISCHE  
FAKULTÄT

# Forschungsbericht 2018

Universitätsklinik für Neuroradiologie

# UNIVERSITÄTSKLINIK FÜR NEURORADIOLOGIE

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## 1. Leitung

Direktor Prof. Dr. med. Martin Skalej

## 2. HochschullehrerInnen

Prof. Dr. med. Martin Skalej

## 3. Forschungsprofil

- TESTDas Aufgabengebiet der Neuroradiologie umfaßt die Diagnostik und Therapie von Erkrankungen und Veränderungen des zentralen Nervensystems (ZNS), d.h. von Gehirn und Rückenmark, einschließlich seiner Hüll- und Nachbarstrukturen
- Die Neuroradiologie ergänzt mit radiologischen Untersuchungs-techniken die Nachbardisziplinen Neurologie, Neurochirurgie, Neuropädiatrie, Psychiatrie, Orthopädie und Ophthalmologie (Augenheilkunde) und bietet ihnen Hilfe und Alternativen in diagnostischer und therapeutischer Hinsicht
- Enge diagnostische Fragestellungen verbinden die Neuroradiologie auch mit den Fächern Hals-, Nasen-, Ohrenheilkunde und Kieferchirurgie

## 4 Veröffentlichungen

### *Begutachtete Zeitschriftenaufsätze*

**Abdurahman, Shiras; Frysch, Robert; Bismark, Richard; Melnik, Steffen; Beuing, Oliver; Rose, Georg**  
Beam hardening correction using cone beam consistency conditions  
IEEE transactions on medical imaging: a publication of the IEEE Engineering in Medicine and Biology Society -  
New York, NY: Institute of Electrical and Electronics Engineers, Bd. 37.2018, 10, S. 2266-2277;  
[Imp.fact.: 6.131]

**Asadollahi, Reza; Strauss, Justin E.; Zenker, Martin; Beuing, Oliver; Edvardson, Simon; Elpeleg, Orly; Strom, Tim M.; Joset, Pascal; Niedrist, Dunja; Otte, Christine; Oneda, Beatrice; Boonsawat, Paranchai; Azzarello-Burri, Silvia; Bartholdi, Deborah; Papik, Michael; Zweier, Markus; Haas, Cordula; Ekici, Arif Bülent; Baumer, Alessandra; Boltshauser, Eugen; Steindl, Katharina; Nothnagel, Michael; Schinzel, Albert; Stoeckli, Esther; Rauch, Anita**  
Clinical and experimental evidence suggest a link between KIF7 and C5orf42-related ciliopathies through Sonic Hedgehog signaling  
European journal of human genetics: the official journal of the European Society of Human Genetics -  
Basingstoke: Stockton Press, Bd. 26.2018, 2, S. 197-209;  
[Imp.fact.: 3.636]

**Behrendt, Benjamin; Berg, Philipp; Beuing, Oliver; Preim, Bernhard; Saalfeld, Sylvia**  
Explorative blood flow visualization using dynamic line filtering based on surface features  
Computer graphics forum: the international journal of the Eurographics Association - Oxford: Wiley-Blackwell,  
Bd. 37.2018, 3, S. 183-194;  
[Konferenz: 20th EG/VGTC Conference on Visualization, EuroVis 2018, Brno, Czech Republic 4-8 June 2018]  
[Imp.fact.: 2.046]

**Berg, Philipp; Beuing, Oliver**  
Multiple intracranial aneurysms - a direct hemodynamic comparison between ruptured and unruptured vessel malformations  
International journal of computer assisted radiology and surgery: a journal for interdisciplinary research, development and applications of image guided diagnosis and therapy - Berlin: Springer, Bd. 13.2018, 1, S. 83-93;  
[Imp.fact.: 1.961]

**Berg, Philipp; Saalfeld, Sylvia; Voß, Samuel; Redel, Thomas; Preim, Bernhard; Janiga, Gábor; Beuing, Oliver**  
Does the DSA reconstruction kernel affect hemodynamic predictions in intracranial aneurysms? - an analysis of geometry and blood flow variations  
Journal of neuroInterventional surgery: JNIS : the journal of the Society of NeuroInterventional Surgery - London: BMJ Journals, Bd. 10.2018, 3, S. 290-296;  
[Imp.fact.: 3.551]

**Berg, Philipp; Voß, Samuel; Saalfeld, Sylvia; Janiga, Gábor; Bergersen, Aslak W.; Valen-Sendstad, Kristian; Bruening, Jan; Goubergrits, Leonid; Spuler, Andreas; Cancelliere, Nicole M.; Steinman, David A.; Pereira, Vitor M.; Chiu, Tin Lok; Tsang, Anderson Chun On; Chung, Bong Jae; Cebral, Juan R.; Cito, Salvatore; Pallarès, Jordi; Copelli, Gabriele; Csippa, Benjamin; Paál, György; Fujimura, Soichiro; Takao, Hiroyuki; Hodis, Simona; Hille, Georg; Karmonik, Christof; Elias, Saba; Kellermann, Kerstin; Khan, Muhammad Owais; Marsden, Alison L.; Morales, Hernán G.; Piskin, Senol; Finol, Ender A.; Pravdivtseva, Mariya; Rajabzadeh-Oghaz, Hamidreza; Paliwal, Nikhil; Meng, Hui; Seshadhri, Santhosh; Howard, Matthew; Shojima, Masaaki; Sugiyama, Shin-ichiro; Niizuma, Kuniyasu; Sindeev, Sergey; Frolov, Sergey; Wagner, Thomas; Brawanski, Alexander; Qian, Yi; Wu, Yu-An; Carlson, Kent D.; Dragomir-Daescu, Dan; Beuing, Oliver**  
Multiple Aneurysms AnaTomy CHallenge 2018 (MATCH) - phase I : segmentation  
Cardiovascular engineering and technology: CVET - New York, NY: Springer, Bd. 9.2018, 4, S. 565-581;  
[Online first]  
[Imp.fact.: 1.451]

**Eppler, Elisabeth; Serowy, Steffen; Link, Karl; Filgueira, Luis**

Experience from an optional dissection course in a clinically-orientated concept to complement system-based anatomy in a reformed curriculum

Anatomical sciences education: ASE - Weinheim [u.a.]: Wiley-VCH, Bd. 11.2018, 1, S. 32-43;

[Imp.fact.: 3.114]

**Hassan, Ahmad Ibrahim; Skalej, Martin; Schlattl, Helmut; Hoeschen, Christoph**

Determination and verification of the x-ray spectrum of a CT scanner

Journal of medical imaging: JMI - [Bellingham, Wash.]: SPIE, Bd. 5.2018, 1, Art.-Nr. 013506, insges. 15 S.;

**Haverkamp, Lars Christian Arndt Simon; Ganslandt, Thomas; Horki, Petar; Boeker, Martin; Dörfler, Arnd; Schwab, Stefan; Berkefeld, Joachim; Pfeilschifter, Waltraud; Niesen, Wolf-Dirk; Egger, Karl; Kaps, Manfred; Brockmann, Marc Alexander; Neumaier-Probst, Eva; Szabo, Kristina; Skalej, Martin; Bien, Siegfried; Best, Christoph; Prokosch, Hans-Ulrich; Urbach, Horst**

Regional differences in thrombectomy rates - secondary use of billing codes in the MIRACUM (Medical Informatics for Research and Care in University Medicine) consortium

Clinical neuroradiology: official publication of the German, Austrian and Swiss societies of neuroradiology - München: Urban & Vogel, Bd. 28.2018, 2, S. 225-234;

[Imp.fact.: 2.79]

**Hille, Georg; Saalfeld, Sylvia; Serowy, Steffen; Tönnies, Klaus**

Multi-segmental spine image registration supporting image-guided interventions of spinal metastases

Computers in biology and medicine: an international journal - Amsterdam [u.a.]: Elsevier Science, Bd. 102.2018, S. 16-20;

[Imp.fact.: 2.115]

**Hille, Georg; Saalfeld, Sylvia; Serowy, Steffen; Tönnies, Klaus**

Vertebral body segmentation in wide range clinical routine spine MRI data

Computer methods and programs in biomedicine: an international journal devoted to the development, implementation and exchange of computing methodology and software systems in biomedical research and medical practice - Amsterdam: Elsevier, Bd. 155.2018, S. 93-99;

[Imp.fact.: 2.674]

**Liebe, Thomas; Li, Meng; Colic, Lejla; Munk, Matthias Hans Joachim; Sweeney-Reed, Catherine M.; Woelfer, Marie; Kretzschmar, Moritz Andreas; Steiner, Johann; Düring, Felicia; Behnisch, Gusalija; Schott, Björn Hendrik; Walter, Martin**

Ketamine influences the locus coeruleus norepinephrine network, with a dependency on norepinephrine transporter genotype - a placebo controlled fMRI study

NeuroImage: Clinical: a journal of diseases affecting the nervous system : open access journal - [Amsterdam u.a.]: Elsevier, Bd. 20.2018, S. 715-723;

[Imp.fact.: 3.869]

**Mertens, Anke; Barche, Doreen; Scheinpflug, Laszlo; Scholz, Friedrich Gunther; Vielhaber, Stefan; Scherlach, Cordula; Tröger, Uwe; Geginat, Gernot; Färber, Jacqueline; Arens, Christoph**

Rhinocerebrale Mucormykose

Laryngo-Rhino-Otologie - Stuttgart [u.a.]: Thieme, Bd. 97.2018, 8, S. 550-554;

[Imp.fact.: 0.922]

**Meuschke, Monique; Oeltze-Jafra, Steffen; Beuing, Oliver; Preim, Bernhard; Lawonn, Kai**

Classification of blood flow patterns in cerebral aneurysms

IEEE transactions on visualization and computer graphics: TVCG - New York, NY: IEEE, 2018;

[Online first]

[Imp.fact.: 3.078]

**Roloff, Christoph; Stucht, Daniel; Beuing, Oliver; Berg, Philipp**

Comparison of intracranial aneurysm flow quantification techniques - standard PIV vs stereoscopic PIV vs tomographic PIV vs phase-contrast MRI vs CFD

Journal of neuroInterventional surgery: JNIS : the journal of the Society of NeuroInterventional Surgery - London: BMJ Journals, 2018;

[Online first]

[Imp.fact.: 3.524]

**Saalfeld, Sylvia; Berg, Philipp; Niemann, Annika; Luz, Maria; Preim, Bernhard; Beuing, Oliver**

Semiautomatic neck curve reconstruction for intracranial aneurysm rupture risk assessment based on morphological parameters

International journal of computer assisted radiology and surgery: a journal for interdisciplinary research, development and applications of image guided diagnosis and therapy - Berlin: Springer, Bd. 13.2018, 11, S. 1781-1793;

[Imp.fact.: 1.961]

**Voß, Samuel; Saalfeld, Sylvia; Hoffmann, Thomas; Beuing, Oliver; Janiga, Gábor; Berg, Philipp**

Fluid-structure interaction in intracranial vessel walls - the role of patient-specific wall thickness

Current directions in biomedical engineering - Berlin: De Gruyter, Bd. 4.2018, 1, S. 587-590;

**Begutachtete Buchbeiträge**

**Berg, Philipp; Radtke, Livia; Voß, Samuel; Serowy, Steffen; Janiga, Gábor; Preim, Bernhard; Beuing, Oliver; Saalfeld, Sylvia**

3DRA reconstruction of intracranial aneurysms - how does voxel size influences morphologic and hemodynamic parameters

Learning from the past, looking to the future: 2018 40th Annual International Conference of the IEEE Engineering in Medicine and Biology Society : July 17-21, 2018, Hawaii Convention Center, Honolulu, Hawaii - [Piscataway, NJ]: IEEE, S. 1327-1330;

[Konferenz: 40th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC), Honolulu, HI, USA, 18-21 July 2018]

**Hille, Georg; Serowy, Steffen; Tönnies, Klaus; Saalfeld, Sylvia**

Computer-aided detection of the most suitable MRI sequences for subsequent spinal metastasis delineation

Bildverarbeitung für die Medizin 2018: Algorithmen - Systeme - Anwendungen ; Proceedings des Workshops vom 11. bis 13. März 2018 in Erlangen - Berlin: Springer Vieweg, S. 275-279;

[Workshop: Bildverarbeitung für die Medizin 2018, Erlangen, 11. bis 13. März 2018]

**Klink, Fabian; Kalmar, Marco; Hoffmann, Thomas**

Entwicklung eines Hydrogelphantoms zur Simulation von Temperaturverteilung im Gehirn

Digitalisierung und Produktentwicklung - vernetzte Entwicklungsumgebungen: 16. Gemeinsames Kolloquium Konstruktionstechnik : am 11. und 12. Oktober 2018 in Bayreuth : Tagungsband - Bayreuth: Universität Bayreuth, Lehrstuhl für Konstruktionslehre und CAD, S. 180-189;

[Konferenz: KT-Kolloquium 2018, Bayreuth]

**Niemann, Uli; Berg, Philipp; Niemann, Annika; Beuing, Oliver; Preim, Bernhard; Spiliopoulou, Myra; Saalfeld, Sylvia**

Rupture status classification of intracranial aneurysms using morphological parameters

31st IEEE International Symposium on Computer-Based Medical Systems: CBMS 2018 : 18-21 June 2018, Karlstad, Sweden : proceedings - Piscataway, NJ: IEEE;

[Symposium: 31st IEEE International Symposium on Computer-Based Medical Systems, CBMS 2018, Karlstad, Sweden, 18-21 June 2018]

**Voß, Samuel; Saalfeld, Patrick; Saalfeld, Sylvia; Beuing, Oliver; Janiga, Gábor; Preim, Bernhard**

Impact of gradual vascular deformations on the intra-aneurysmal hemodynamics

Bildverarbeitung für die Medizin 2018: Algorithmen - Systeme - Anwendungen ; Proceedings des Workshops vom 11. bis 13. März 2018 in Erlangen - Berlin: Springer Vieweg, S. 359-364;

[Workshop: Bildverarbeitung für die Medizin 2018, Erlangen, 11. bis 13. März 2018]

## **Abstracts**

**Bannasch, Sebastian; Eckel, Christina; Frysch, Robert; Beuing, Oliver; Warnecke, Gerald; Rose, Georg**

Noise reduction in perfusion imaging using data-driven prior knowledge

Clinical neuroradiology: official publication of the German, Austrian and Swiss societies of neuroradiology - München: Urban & Vogel, Vol. 28.2018, Suppl. 1, Abstr. 288, S. S100-S101;

[Tagung: 53. Jahrestagung der Deutschen Gesellschaft für Neuroradiologie e.V., Frankfurt am Main, 3.-6. Oktober 2018]

[Imp.fact.: 2.79]

**Meckel, Stephan; Boeker, Martin; Linn, Jennifer; Schmitz-Schackert, Gabriele; Groden, Christoph; Hänggi, Daniel; Bien, Siegfried; Nimsky, Christopher; Skalej, Martin; Firsching, Raimund; Konczalla, Jürgen; Berkefeld, Joachim; Dörfler, Arnd; Buchfelder, Michael; Brockmann, Marc Alexander; Ringel, Florian; Shah, Mukesh; Beck, Jürgen; Urbach, Horst; Haverkamp, Lars Christian Arndt Simon**

Trends and differences in endovascular and neurosurgical treatment of ruptured and unruptured intracranial aneurysms between 2010 and 2016 - secondary use of billing codes in the MIRACUM (Medical Informatics for Research and Care in University Medicine) consortium

Clinical neuroradiology: official publication of the German, Austrian and Swiss societies of neuroradiology - München: Urban & Vogel, Vol. 28.2018, Suppl. 1, Abstr. 146, S. S42-S43;

[Imp.fact.: 2.79]

**Voß, Samuel; Saalfeld, Sylvia; Hoffmann, Thomas; Janiga, Gábor; Beuing, Oliver; Berg, Philipp**

Fluid-structure interaction in intracranial vessel walls - the role of patient-specific wall thickness

Biomedical engineering: joint journal of the German Society for Biomedical Engineering in VDE and the Austrian and Swiss Societies for Biomedical Engineering - Berlin [u.a.]: de Gruyter, Vol. 63.2018, Suppl.1, S. S378;

[Kongress: BMT 2018, Aachen, September 26-28, 2018]

[Imp.fact.: 1.088]