

Axel Boese, Dr.-Ing.



Education

2004 Dipl.- Ing., Mechanical Engineering, Product Design
Magdeburg, Germany

Thesis

2016 Dr.- Ing., Mechanical Engineering
Magdeburg, Germany

Axel Boese: Lösungsfindung mit dem Endnutzer, ein neuer Ansatz in der methodischen Produktentwicklung am Beispiel der Medizintechnik. 12/2016; Shaker Verlag Aachen., ISBN: 978-3-8440-4947-3

Research Experience

- Dec 2014 – present* **Chair Manager, Senior Researcher – INKA – Chair, Catheter Technologies and Medical Devices for Image guided Therapy**
Otto-von-Guericke-Universität Magdeburg, Institute of medical engineering (IMT), Germany
- April 2014– present* **Co-Founder M3DP-Medical Devices and Prototypes**
- Jun 2013 – Nov 2014* **Senior Researcher – Vascular Devices**
Otto-von-Guericke-Universität Magdeburg, Clinic for Neuroradiology
Magdeburg, Germany
- Feb 2009 – May 2013* **Group Leader INKA – Intelligent Catheters**
Otto-von-Guericke-Universität Magdeburg, Institute of Electronics, Signal Processing and Communications (IESK)
Magdeburg, Germany
- Jan 2006 – Jan 2009* **Project Manager Automotive Research**
Otto-von-Guericke-Universität Magdeburg, Institute of Engineering Measurement and Combustion Engines (IMKO)
Magdeburg, Germany
- May 2004 – Dec 2005* **Researcher – Design and Additive Manufacturing**
Otto-von-Guericke-Universität Magdeburg, Department of Mechanical Engineering (IMK)
Magdeburg, Germany

Statistics

RG Score 21.94

Publications 109

Awards & Grants

Dec 2013 Award: Hugo Junckers Preis, Sonderpreis Medizintechnik: Ball Endoscope

Dec 2017 Award: Hugo Junckers Preis, SURAG, Surgical Audio Guide

Skills & Experiences

Skills Biomedical Engineering and Design, Medical Interventions, Medical Instrumentation, Catheters, Guide wires, Vascular Devices, Needles, Implants, Stents, Coils, Medical Imaging, X-Ray, Ultrasound, MRI, Medical Workflow, BioDesign, Bioinspired Engineering and Biomimetic Design, Medical Manufacturing, Risk Analysis and Certification, 3D Modeling, Additive Manufacturing, Extrusion, Injection Molding, Assembling, QM

Experiences Teaching: Design, Mechanical Engineering, Additive Manufacturing, Medical Devices, Medical Procedures, Risk Analysis and Certification

Work: **Co-Founder M3DP**-Medical Devices and Prototypes, Development, Manufacturing and Clinical Application

Industrial Manufacturing: Kaizen, Peiner Umformtechnik, Germany; QM Umsetzung, Covidien Halberstadt, Germany ; Stent Manufacturing, Admedes, Germany; Catheter and Stent Manufacturing, Balt, France; Extrusion and Injection Molding, Primed, Germany, 3D Additive Manufacturing FIT, Germany

Languages German, English, Spanish

Scientific Memberships VDE, DGBMT, INNOMED EV, Med Cluster, Member of DIN NA 063-01-02 AA Catheters

Publication Highlights

Books

Axel Boese: *Lösungsfindung mit dem Endnutzer, ein neuer Ansatz in der methodischen Produktentwicklung am Beispiel der Medizintechnik*. 12/2016; Shaker Verlag Aachen., ISBN: 978-3-8440-4947-3

Book Chapters

A Boese: *Medical Devices: Surgical and Image-Guided Technologies*. P. 99-118 Chapter 06 *Catheters in vascular therapy*. Edited by Culjat M, Singh R, Lee H., 11/2012; John Wiley & Sons., ISBN: 0470549181

Journal Publications

Axel Boese, Akhil Karthasserial Sivankutty, Michael Friebe: *Can vascular endoscopy combined with narrow band imaging improve diagnostic*. *Interventional Neuroradiology* 10/2017; 23(1_suppl):60-335., DOI:10.1177/1591019917727410

Ali Mahmoud-Pashazadeh, Alfredo Illanes, Fredrick Johnson Joseph, Alexander van Oepen, Axel Boese, Michael Friebe: *Miniature CNT-based X-ray tube: assessment for use in intraoperative radiation therapy*. *Current Directions in Biomedical Engineering* 09/2017; 3(2)., DOI:10.1515/cdbme-2017-0135

Holger Fritzsche, Axel Boese, Michael Friebe: *INNOLAB- image guided surgery and therapy lab*. *Current Directions in Biomedical Engineering* 09/2017; 3(2)., DOI:10.1515/cdbme-2017-0049

Axel Boese, Akhil Karthasserial Sivankutty, Michael Friebe: *Evaluation and image quality comparison of ultra-thin fibre endoscopes for vascular endoscopy*. *Current Directions in Biomedical Engineering* 09/2017; 3(2)., DOI:10.1515/cdbme-2017-0048

Marwah ALmaatoq, Axel Boese, Michael Friebe: *Concept of a multilayer biopsy needle for Magnatic Resonance Imaging interventions*. *Biomedizinische Technik* 08/2017; 62(s1)., DOI:10.1515/bmt-2017-5069

Axel Boese, Fredrick Johnson, Till Ebert, Ali Mahmoud-Pashazadeh, Christoph Arens, Michael Friebe: *Trans-oral miniature X-ray radiation delivery system with endoscopic optical feedback*. *International Journal of Computer Assisted Radiology and Surgery* 05/2017;, DOI:10.1007/s11548-017-1601-x

Axel Boese, Akhil Karthasserial Sivankutty, Alfredo Illanes, Michael Friebe: *Intravascular endoscopy improvement through narrow-band imaging*. *International Journal of Computer Assisted Radiology and Surgery* 03/2017;, DOI:10.1007/s11548-017-1579-4

Axel Boese, Dirk Foerstenberg, Tong Wu, Michael Friebe: *Inside-Out access strategy using new trans-vascular catheter approach*. *Current Directions in Biomedical Engineering* 09/2016; 2(1):455-458., DOI:10.1515/cdbme-2016-0100

Thomas Hoffmann, Fabian Klink, Axel Boese, Karin Fischer, Oliver Beuing, Georg Rose: *Development of a skull phantom for the assessment of implant X-ray visibility*. *Current Directions in Biomedical Engineering* 09/2016; 2(1)., DOI:10.1515/cdbme-2016-0078

- Sylvia Glaßer, Thomas Hoffmann, Axel Boese, Samuel Voß, Thomas Kalinski, Martin Skalej, Bernhard Preim: *Virtual Inflation of the Cerebral Artery Wall for the Integrated Exploration of OCT and Histology Data*. Computer Graphics Forum 08/2016; 35., DOI:10.1111/cgf.12994
- Thomas Hoffmann, Axel Boese, Sylvia Glaßer, Martin Skalej, Oliver Beuing: *Intravascular optical coherence tomography (OCT) as an additional tool for the assessment of stent structures*. Current Directions in Biomedical Engineering 09/2015; 1(1)., DOI:10.1515/cdbme-2015-0064
- Axel Boese, Georg Rose, Michael Friebe, Thomas Hoffmann, S. Serowy, Martin Skalej, W. Mailänder, G. Cattaneo: *Increasing the visibility of thin NITINOL vascular implants*. Current Directions in Biomedical Engineering 09/2015; 1(1):503-506., DOI:10.1515/cdbme-2015-0120
- A. Boese, M. Detert, Chr. Stibbe, M. Thiele, Chr. Arens: *"Hands free for intervention", a new approach for transoral endoscopic surgery*. Current Directions in Biomedical Engineering 09/2015; 1(1)., DOI:10.1515/cdbme-2015-0039
- Thomas Hoffmann, Sylvia Glaßer, Axel Boese, Knut Brandstädter, Thomas Kalinski, Oliver Beuing, Martin Skalej: *Experimental investigation of intravascular OCT for imaging of intracranial aneurysms*. International Journal of Computer Assisted Radiology and Surgery 08/2015; 11(2)., DOI:10.1007/s11548-015-1275-1
- Thomas Hoffmann, Axel Boese, Steffen Serowy, Giorgio FM Cattaneo, Werner Mailänder, Martin Skalej, Oliver Beuing: *New material compositions for an increased visibility of flow diverter stents*. Interventional Neuroradiology 01/2015; Volume 21(Supplement 1 2015):317.
- Axel Boese, Thomas Hoffmann, Martin Skalej, Michael Friebe, Oliver Beuing: *Changing the stiffness of vascular catheters intra interventional*. Interventional Neuroradiology 01/2015; Volume 21(Supplement 1 2015):182-183.
- O Beuing, A Boese, Y Kyriakou, Y Deuerling-Zengh, B Jöllenbeck, C Scherlach, A Lenz, S Serowy, S Gugel, G Rose, M Skalej: *A Novel Technique for the Measurement of CBF and CBV with Robot-Arm-Mounted Flat Panel CT in a Large-Animal Model*. American Journal of Neuroradiology 05/2014; 35(9)., DOI:10.3174/ajnr.A3973
- Axel Boese, Sebastian Gugel, Steffen Serowy, Jonas Purmann, Georg Rose, Oliver Beuing, Martin Skalej, Yiannis Kyriakou, Yu Deuerling-Zheng: *Performance evaluation of a C-Arm CT perfusion phantom*. International Journal of Computer Assisted Radiology and Surgery 12/2012; 8(5)., DOI:10.1007/s11548-012-0804-4
- A Boese, S Becker, M Skalej, G Rose: *Evaluation of flow parameters of a catheter for intravascular cooling*. Biomedizinische Technik/Biomedical Engineering 08/2012; 57(SI-1 Track-C)., DOI:10.1515/bmt-2012-4199
- A Boese, F Fischbach, J Ricke, G Rose: *Development of a full MR-compatible non-electric drilling machine for MR-guided bone biopsies*.
- J Krug, K Jungnickel, M Kaiser, J Ricke, G Rose, A Boese: *Investigating the Artifacts of Different Rapid Prototyping Materials under MR*.
- Anton Shkel, Shyam Natarajan, Stefan Schimpf, Martin O Culjat, Andreas Brose, Axel Boese, Bertram Schmidt, Peter G Schulam, Hua Lee, Warren Grundfest, Rahul Singh: *A transurethral catheter-based*

ultrasound system for multi-modal fusion. Studies in health technology and informatics 01/2012;
173:463-8., DOI:10.3233/978-1-61499-022-2-463

Patents

Axel Boese, Michael Friebe, Dietmar Huthmacher: *SCAFFOLD-BRACHYTHERAPY MIT INTEGRIERTER VISUALISIERUNG*. Ref. No: 102016122715.3 Year: 11/2016

Axel Boese, Michael Friebe, Urte Kägebein, Robert Odenbach: *Nadelstrumpf mit Trägersystem*. Ref. No: 102016119065.9 Year: 10/2016

Robert Odenbach, Axel Boese, Michael Friebe: *RP MR Marker* Ref. No: 102016117763.6

Axel Boese, Michael Friebe: *Punktionskatheter*. Year: 06/2016

Axel Boese, Michael Friebe: *Marker für medizinische Instrumente*. Ref. No: 102016103796.6 Year: 03/2016

Axel Boese, Holger Fritzsche, Michael Friebe: *Resektoskop mit Drehmechanik*. Ref. No: 10 2015 122 713.4
Year: 12/2015

Axel Boese, Michael Friebe: *Endovascular Clip*. Ref. No: 10 2015 121 374.5 Year: 12/2015

Michael Friebe, Axel Boese, Johannes Krug: *Guidewire*. Ref. No: EP15167450, Year: 05/2015

Michael Friebe, Axel Boese: *Ablation Catheter*. Ref. No: EP15160031, Year: 03/2015

Michael Friebe, Axel Boese: *In Vivo Implant Diagnostic Device*. Ref. No: EP15156186, Year: 02/2015

Axel Boese, Christoph Arens: *Endoscope*. Ref. No: WO2012146664A1 Year: 04/2012

Axel Boese: *Katheter zum Aufsetzen auf Gefäßwände*. Year: 01/2012

Axel Boese: *Katheter mit variabler Spitzenöffnung*. Year: 01/2012

Axel Boese: *Katheter und Schlinge mit Clip zum Verschließen von Aneurysmen*. Year: 01/2012

Axel Boese: *Katheter mit steuerbarer Katheterspitze*. Year: 01/2012