

Personal data and weblinks

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Professional career and degrees

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| 2019-ongoing | Assistant Professor, Department of Mathematical and Computational Sciences, University of Toronto Mississauga, Canada |
| 2019-ongoing | Cross-Appointed Faculty, Department of Computer Science, University of Toronto, Canada |
| 2019-ongoing | Cross-Appointed Staff, Centre for Image Guided Innovation & Therapeutic Intervention (CIGITI), The Hospital for Sick Children, Toronto, Canada |
| 2017-2019 | Academic Councillor (Akademischer Rat), Institute of Mechatronic Systems, Head: Prof. Dr. T. Ortmaier, Leibniz Universität Hannover, Germany |
| 2016-2019 | Head of the Workgroup Rapid Prototyping for Implants, Lower Saxony Centre for Biomedical Engineering, Implant Research and Development (NIFE), Germany |
| 2013-2019 | Head of the Medical Technology and Image Processing Research Group, Institute of Mechatronic Systems, Head: Prof. Dr. T. Ortmaier, Leibniz Universität Hannover, Germany |
| 2012-2013 | Fellowship (return grant) for reintegration in the German research system, German Research Foundation (DFG), associated with the Institute of Mechatronic Systems, Head: Prof. Dr. T. Ortmaier, Leibniz Universität Hannover, Germany |
| 2011-2012 | Abroad Research Fellowship for Postdocs, German Research Foundation (DFG), associated with the Computer-Assisted Otologic Surgery (CAOS) Lab, Head: R.F. Labadie, MD, PhD, Vanderbilt University, Nashville, TN, USA |
| 2010-2012 | Research Fellow, Department of Otolaryngology, Head: R.D. Eavey, MD, Computer-Assisted Otologic Surgery (CAOS) Lab, Head: R.F. Labadie, MD, PhD Vanderbilt University Medical Center, Nashville, TN, USA |
| 2009-2010 | Postdoc, ENT Department, Head: Prof. Dr. J. Schipper, University Hospital Düsseldorf, Germany |
| 2009 | Dr.-Ing. (comparable with Ph.D.), Department of Informatics, Universität Karlsruhe (TH), Supervisor: Prof. Dr. H. Wörn |

- 2007-2009 Co-Head of the Medical Robotics Group, Head: Dr. J. Raczowsky, Institute for Process Control and Robotics, Universität Karlsruhe (TH), Germany
- 2003-2009 Scientific Staff, Institute for Process Control and Robotics (IPR), Head: Prof. Dr. H. Wörn, Universität Karlsruhe (TH), Germany
- 1995-2002 Physics, Degree: Diplom (comparable M. Sc.), Supervisor: Prof. Dr. D. Hommel, University of Bremen, Germany

Third-party funds (selection of granted projects)

- as principle investigator (total amount: 799,000 €)

- **German Research Foundation, Research Grant:** *Evaluation of the Laryngeal Adductor Reflex with a Mechatronic Microdroplet Laryngoscope*, project number: KA 2975/6-1, status: running, duration: 33 months, funding amount: 260,000 €, project partner: Prof. Dr. med. Dr. h.c. Martin Ptok (with own funding)
- **German Research Foundation, Research Grant Extension:** *Endoscopy of trabecular bone for intraoperative registration*, project number: KA 2975/4-2, status: completed, duration: 15 months, funding amount: 120,000 €
- **German Research Foundation, Research Grant:** *Endoscopy of trabecular bone for intraoperative registration*, project number: KA 2975/4-1, status: completed, duration: 36 months, funding amount: 295,000 €, project partner: Prof. Dr. med. Omid Majdani, Prof. Dr. med. Dorothea Daentzer (with own funding)
- **Industry funded project:** Möller-Wedel GmbH & Co. KG, status: completed, duration: 7 months, funding amount: 69,000 €, project partner: Prof. Dr. med. Arya Nabavi
- **German Research Foundation, Research Fellowships:** *Methods for optical inspection of the inner ear and visual control of electrode placement for percutaneous cochlear implantation*, project numbers: KA 2975/2-1 and KA 2975/3-1, status: completed, funded duration: 24 months, funding amount: 55,000 €

- as head of research group in Hannover (total amount over 4 million €)

- **EFRE Innovation Network (EU and state funds), grant:** *OCT-controlled laser ablation during vocal fold phonation (OPhonLas)*, duration: 36 months, role: initiator, idea provider, coordinator, formulation of major passages of the proposal, funding amount of consortium: 1,300,000 €
- **German Centre for Cardiovascular Research (funds from Federal Ministry of Education and Research), grant:** *Robot-assisted 3D extrusion bioprinting of engineered human myocardium with defined force pattern*, duration: 12 months, role: formulation of major passages of the proposal, funding amount: 35,000 €
- **Large research instrumentation:** Direct metal laser sintering system, status: granted, procurement, role: formulation of the proposal, funding amount: 445,000 €
- **Large instrumentation in research buildings (NIFE):** Intra operative imaging system (DVT/CBCT), status: in usage, role: Co-applicant, formulation of the proposal, funding amount: 420,000 €

- **Large instrumentation in research buildings (NIFE):** Rapid Prototyping System, status: in usage, role: formulation of major passages of the proposal, funding amount: 220,000 €
- **Federal Ministry of Education and Research, SME Medical Technology project:** Preclinical realization of an integrated, minimal-invasive cochlea implant system based on patient specific jigs (RoboJig), duration: 36 months, role: formulation of major passages of the proposal, funding amount of consortium: 1,615,000 €

Awards and travel grants

- Editor-picked Top 5 Journal Paper for the years 2016-2018, Contribution: Color-encoded distance for interactive focus positioning in laser microsurgery, Optics and Lasers in Engineering, Volume 83, August 2016, Pages 71-79, Authors: A. Schoob, D. Kundrat, S. Lekon, L. A. Kahrs, T. Ortmaier, 2018
- Best Oral Presentation Award, 11th Hamlyn Symposium, London, UK, Contribution: Towards concentric tube robots for microsurgery: First results in eye-to-hand visual servoing, Authors: V. Modes, S. Ihler, A. Nabavi, T. Ortmaier, L. A. Kahrs, J. Burgner-Kahrs, 2018
- Best Paper Award, 50th International Symposium on Robotics (ISR 2018), Munich, Germany, Contribution: A user study on robot path planning inside a Virtual Reality environment, Authors: C. Just, T. Ortmaier, L. A. Kahrs, 2018
- 2nd Best Paper Award, 15th Annual Meeting of the German Society for Computer and Robot Assisted Surgery (CURAC), Bern, Switzerland, Contribution: First Study on a Monolithically Manufactured Variable-Length Continuum Robot with Hybrid Actuation, Authors: D. Kundrat, A. Schoob, L. A. Kahrs, T. Ortmaier, 2016
- 2nd Best Paper Award, 14th Annual Meeting of the German Society for Computer and Robot Assisted Surgery (CURAC), Bremen, Germany, Contribution: Towards endoscopic image-to-physical registration of mastoid cells and trabecula, Authors: J. Bergmeier, D. Daentzer, C. Noll, O. Majdani, T. Ortmaier, L. A. Kahrs, 2015
- Travel grant, German Academic Exchange Service (DAAD), 2015
- Travel grant, German Society for Computer and Robot Assisted Surgery (CURAC), 2008

Invited talks

- Honorary colloquium for Dr. Jörg Raczowsky, Karlsruhe Institute of Technology, Germany, 2018
- *Online Data Processing and Postprocessing of OCT Images and Volumes (in German: Online-Datenverarbeitung und Postprocessing von OCT-Bildern und -Volumina)*, technology seminar, Bayerisches Laserzentrum GmbH, Erlangen, Germany, 2018
- *Next-generation Medicine – Towards Computer and Robot Assisted Theragnosis*, Department of Computer Science Lecture, University of Toronto, Canada, 2018
- *Endoscopy inside confined spaces – examples inside otolaryngology (in German: Endoskopie in beengten Räumen an Beispielen der HNO)*, 48th Congress of German Society of Endoscopy and Imaging Methods (in German: Kongress der Deutschen Gesellschaft für Endoskopie und Bildgebende Verfahren e.V.), München, Germany, 2018
- *Endoscopic and Microscopic Theragnosis*, Universität zu Lübeck, Germany, 2017
- *Compensation of Soft Tissue Deformation for Autonomous Laser Ablation*, Workshop Roadmap to autonomous robotic surgery, University of Verona, Italy, 2017

- *Review of Medical Robot Systems for Cochlear Implant Surgery*, Workshop for PhD students inside the CURAC workgroup Medical Robot Systems, Hamburg, Germany, 2016
- *Embedded Sensors and Actuators for Gentle Insertion of Cochlear Implants*, 15th International Conference on New Actuators, Bremen, Germany, 2016
- *Computer and Robot Assisted Surgery for Cochlear Implants*, Seminar IIT ADVR, Genoa, Italy, 2016
- *Mechatronic Devices for Accurate Laser Ablation*, Department of Biomedical Engineering, University of Basel, Switzerland, 2015
- *Computer and Robot Assisted Head and Neck Surgery*, University of Stuttgart, Germany, 2014
- *Methods for Computer Assisted Otologic Surgery*, Otto von Guericke University Magdeburg, Germany, 2013
- *Pre-planned and depth-controlled laser bone ablation – results and challenges*, 1st Russian-German Conference on Biomedical Engineering, Hannover, Germany, 2013
- *Medical Robotics Research of the Institute for Process Control and Robotics*, 41st Meeting of VDI/VDE-GMA-FA 4.13, Braunschweig, Germany, 2008

Memberships, etc.

2018-ongoing	Member Scientific Advisory Board of the German Society for Computer and Robot Assisted Surgery (CURAC)
2017	President of the 16th Annual Meeting of the German Society for Computer and Robot Assisted Surgery (CURAC)
2017	Acquisition of expertise in radiation protection (RöV), R7
2016-ongoing	Member Work Group Medical Robot Systems of the German Society for Computer and Robot Assisted Surgery (CURAC)
2016-2018	Member of program committee International Conference on New Actuators & Exhibition on Smart Actuators and Drive Systems, Track: (Bio)Medical Applications
2014-2016	Member of program committee Joint Workshop on Computer/Robot Assisted Surgery (CRAS)
2013	Member of program committee and local organization 1st Russian German Conference on Biomedical Engineering
2010-ongoing	Member of program committee Annual Meeting of the German Society for Computer and Robot Assisted Surgery (CURAC)
2010-ongoing	Member German Society for Computer and Robot Assisted Surgery (CURAC)
2004-ongoing	Member German Society for Biomedical Engineering (DGBMT / VDE)
2002-ongoing	Member German Physical Society (DPG)

Journal articles

- Fast JF, He J, Jungheim M, Ortmaier T, Ptok M, **Kahrs LA**. An actuated larynx phantom for pre-clinical evaluation of droplet-based reflex-stimulating laryngoscopes. *Current Directions in Biomedical Engineering* (in revision)
 - Laves MH, Ihler S, **Kahrs LA**, Ortmaier T. Quantifying the uncertainty of deep learning-based computer-aided diagnosis for patient safety. *Current Directions in Biomedical Engineering* (in revision)
- [1] Kundrat D, Schoob A, Piskon T, Grässlin R, Schuler PJ, Hoffmann TK, **Kahrs LA**, Ortmaier T. Towards Assistive Technologies for Focus Adjustment in Teleoperated Robotic Non-Contact Laser Surgery, *IEEE Transactions on Medical Robotics and Bionics*, (early access) 2019
 - [2] Laves MH, Bicker J, **Kahrs LA**, Ortmaier T. A Dataset of Laryngeal Endoscopic Images with Comparative Study on Convolution Neural Network Based Semantic Segmentation. *Int J Comput Assist Radiol Surg*. 2019; 14(3): 483-492
 - [3] Müller S, **Kahrs LA**, Gaa J, Tauscher S, Kluge M, John S, Rau TS, Lenarz T, Ortmaier T, Majdani O. Workflow assessment as a preclinical development tool: Surgical process models of three techniques for minimally invasive cochlear implantation. *Int J Comput Assist Radiol Surg*. 2019; 14(8):1389-1401
 - [4] Krämer M, **Kahrs LA**, Friese KI, von Falck C, Hurschler C. *Inter- and intra-operator reliability in patient-specific template positioning for total hip arthroplasty. A cadaver study*. *Int J Med Robot*. 2018; 14(2):e1887 (6 pages)
 - [5] Laves MH, **Kahrs LA**, Ortmaier T. *Volumetric 3D stitching of optical coherence tomography volumes*. *Current Directions in Biomedical Engineering* 2018; 4(1): 327-330
 - [6] Rau TS, Witte S, Uhlenbusch L, Lexow GJ, Hügl S, **Kahrs LA**, Majdani O, Lenarz T. *Minimally invasive mastoidectomy approach using a mouldable surgical targeting system*. *Current Directions in Biomedical Engineering* 2018; 4(1): 403-406
 - [7] Schoob A, Kundrat D, **Kahrs LA**, Ortmaier T. *Stereo Vision-Based Tracking of Soft Tissue Motion with Application to Online Ablation Control in Laser Microsurgery*, *Medical Image Analysis*. 2017; 40:80-95
 - [8] Tauscher S, Fuchs A, Baier F, **Kahrs LA**, Ortmaier T. *High accuracy drilling with an image guided light weight robot: autonomous vs intuitive feed control*, *Int J Comput Assist Radiol Surg*. 2017; 12(10):1763-1773
 - [9] Bergmeier J, Fitzpatrick JM, Daentzer D, Majdani O, Ortmaier T, **Kahrs LA**. *Workflow and simulation of image-to-physical registration of holes inside spongy bone*, *Int J Comput Assist Radiol Surg*. 2017; 12(8):1425-1437
 - [10] Mueller S, **Kahrs LA**, Gaa J, Ortmaier T, Clausen JD, Krettek C. *Patient Specific Pointer Tool for Corrective Osteotomy: Quality of Symmetry Based Planning and Case Study of Ulnar Reconstruction Surgery*. *Injury* 2017; 48(7):1325-1330
 - [11] Fast JF, Muley A, Kühn D, Meisoll F, Ortmaier T, Jungheim M, Ptok M, **Kahrs LA**. *Towards Microprocessor-Based Control of Droplet Parameters for Endoscopic Laryngeal Adductor Reflex Triggering*. *Current Directions in Biomedical Engineering* 2017; 3(2):239-243
 - [12] Mueller S, Ahmad I, Kraemer M, Utz M, Gaa J, **Kahrs LA**, Ortmaier T. *Design considerations for patient-specific surgical templates for total hip arthroplasty with respect to acetabular cartilage*. *Biomed Tech (Berl)*. 2016; 62(3):263-269

- [13] Mohebbi S, Mirsalehi M, **Kahrs LA**, Ortmaier T, Lenarz T, Majdani O. *Experimental Visualization of Labyrinthine Structure with Optical Coherence Tomography*, Iran J Otorhinolaryngol. 2017;29(1):5-9
- [14] Schoob A, Laves MH, **Kahrs LA**, Ortmaier T. *Soft tissue motion tracking with application to tablet-based incision planning in laser surgery*. Int J Comput Assist Radiol Surg. 2016; 11(12): 2325-2337
- [15] Schoob A, Kundrat D, Lekon S, **Kahrs LA**, Ortmaier T. *Color-encoded distance for interactive focus positioning in laser microsurgery*. Optics and Lasers in Engineering 2016; 83:71-79
- [16] Kobler JP, Nuelle K, Lexow GJ, Rau TS, Majdani O, **Kahrs LA**, Kotlarski J, Ortmaier T. *Configuration optimization and experimental accuracy evaluation of a bone-attached, parallel robot for skull surgery*. Int J Comput Assist Radiol Surg. 2016; 11(3):421-436
- [17] Schoob A, Kundrat D, **Kahrs LA**, Ortmaier T. *Comparative study on surface reconstruction accuracy of stereo imaging devices for microsurgery*. Int J Comput Assist Radiol Surg. 2016; 11(1):145-156
- [18] Kobler JP, Wall S, Lexow GJ, Lang CP, Majdani O, **Kahrs LA**, Ortmaier T. *An experimental evaluation of loads occurring during guided drilling for cochlear implantation*. Int J Comput Assist Radiol Surg. 2015; 10(10):1625-1637
- [19] Schoob A, Kundrat D, Kleingrothe L, **Kahrs LA**, Andreff N, Ortmaier T. *Tissue surface information for intraoperative incision planning and focus adjustment in laser surgery*. Int J Comput Assist Radiol Surg. 2015; 10(2):171-181
- [20] Kobler JP, Schoppe M, Lexow GJ, Rau TS, Majdani O, **Kahrs LA**, Ortmaier T. *Temporal bone borehole accuracy for cochlear implantation influenced by drilling strategy: an in vitro study*. Int J Comput Assist Radiol Surg. 2014; 9(6):1033-1043
- [21] Rohani P, Pile J, **Kahrs LA**, Balachandran R, Blachon GS, Simaan N, Labadie RF. *Forces and trauma associated with minimally invasive image-guided cochlear implantation*. Otolaryngol Head Neck Surg. 2014; 150(4):638-645
- [22] Colter L, **Kahrs LA**, Hirschfeld J, Schipper J. *Messung von Strukturverschiebungen bei Kopf-Hals-Rotation*. Laryngo-Rhino-Otologie. 2013; 92(8):523-530
- [23] **Kahrs LA**, Labadie RF. *Freely-available, true-color volume rendering software and cryohistology data sets for virtual exploration of the temporal bone anatomy*. ORL J Otorhinolaryngol Relat Spec. 2013; 75(1):46-53
- [24] **Kahrs LA**, McRackan TR, Labadie RF. *Intracochlear visualization: comparing established and novel endoscopy techniques*. Otol Neurotol. 2011; 32(9):1590-1595
- [25] **Kahrs LA**, Burgner J, Klenzner T, Raczowsky J, Schipper J, Wörn H. *Planning and simulation of microsurgical laser bone ablation*. Int J Comput Assist Radiol Surg. 2010; 5(2):155-162
- [26] Klenzner T, Knapp FB, Schipper J, Raczowsky J, Woern H, **Kahrs LA**, Werner M, Hering P. *High precision cochleostomy by use of a pulsed CO2 laser – an experimental approach*. Cochlear Implants Int. 2009; 10 Suppl 1:58-62
- [27] Krempien R, Hoppe H, **Kahrs L**, Daeuber S, Schorr O, Eggers G, Bischof M, Munter MW, Debus J, Harms W. *Projector-based augmented reality for intuitive intraoperative guidance in image-guided 3D interstitial brachytherapy*. Int J Radiat Oncol Biol Phys. 2008; 70(3):944-952
- [28] **Kahrs LA**, Raczowsky J, Manner J, Fischer A, Wörn H. *Supporting Free Throw Situations of Basketball Players with Augmented Reality*, International Journal of Computer Science in Sport 2006;5(2): 72-75, 2006

- [29] Wörn H, Aschke M, **Kahrs LA**. *New augmented reality and robotic based methods for head-surgery*. Int J Med Robot. 2005; 1(3):49-56

Books (as author)

- [30] **Kahrs LA**. *Bildverarbeitungsunterstützte Laserknochenablation am humanen Felsenbein*, Dissertation, KIT Scientific Publishing, ISBN 978-3-86644-458-4, 2010

Books (as editor)

- [31] Burgner-Kahrs J, **Kahrs LA**, Modes V, Chikhaoui MT, Nabavi A (Eds.). *Proc. 16. Annual Meeting German Society of Computer and Robot Assisted Surgery*, PZH Verlag, ISBN 978-3-95900-158-8, 2017
- [32] Chichkov B, Fadeeva E, **Kahrs LA**, Ortmaier T (Eds.). *Proc. 1st Russian German Conference on Biomedical Engineering*, TEWISS, ISBN 978-3-94458-625-0, 2013
- [33] Burgert O, **Kahrs LA**, Preim B, Schipper J (Eds.). *curac2010@MEDICA. Chirurgische Interventionen: vom Neanderthaler zur Roboterassistenz*, Proc. 9. Annual Meeting German Society of Computer and Robot Assisted Surgery, Der Andere Verlag, ISBN 978-3-86247-078-5, 2010

Book chapters

- [34] **Kahrs LA**, Labadie RF. *Cochlear Endoscopy*. In: Endoscopic Ear Surgery. N. Pollak (Ed.), Plural Publishing Inc., ISBN 978-1-59756-504-2, 2014

Granted patents

- [35] Kundrat D, Schoob A, **Kahrs LA**, Ortmaier T. *Linearstellmechanismus*, DE102017101875 (B4), 2019
- [36] **Kahrs LA**, Ortmaier T, Borchard JH. *Arbeitskopf für einen medizinisch-chirurgischen Manipulator*, DE102015118914 (B4), 2019
- [37] Ortmaier T, **Kahrs LA**, Müller S, Windhagen H, Krämer M, Hirschler C. *Medizinisches Instrumentarium*, DE102016105208 (B3), 2016
- [38] Rau TS, Majdani O, Lenarz T, **Kahrs LA**. *Surgical guidance device and method for its preparation*, EP3058890 (B1), 2015

Conference contributions

- [39] Laves MH, Ihler S, **Kahrs LA**, Ortmaier T. Retinal OCT disease classification with variational autoencoder regularization, 33rd International Congress on Computer Assisted Radiology and Surgery (CARS 2019)
- [40] Laves MH, Ihler S, **Kahrs LA**, Ortmaier T. Semantic denoising autoencoders for retinal optical coherence tomography, SPIE/OSA European Conferences on Biomedical Optics (ECBO 2019)
- [41] Laves MH, Latus S, Bergmeier J, Ortmaier T, **Kahrs LA**, Schlaefer A. Endoscopic vs. volumetric OCT imaging of mastoid bone structure for pose estimation in minimally invasive cochlear implant surgery, 33rd International Congress on Computer Assisted Radiology and Surgery (CARS 2019)
- [42] Ilango S, **Kahrs LA**, Ortmaier T. Spatial augmented reality system with real-time methods for soft tissue deformation compensation, 33rd International Congress on Computer Assisted Radiology and Surgery (CARS 2019)

- [43] Laves MH, **Kahrs LA**, Ortmaier T. *Deep learning based 2.5D flow field estimation for maximum intensity projections of 4D optical coherence tomography*, SPIE Medical Imaging, Image-Guided Procedures, Robotic Interventions, and Modeling, 109510R, 2019
- [44] Fast JF, Rüppel AK, Ptok M, Ortmaier T, Jungheim M, **Kahrs LA**. *Endoscopic guidance system for stimulation of the laryngeal adductor reflex by droplet impact*, SPIE Medical Imaging, Image-Guided Procedures, Robotic Interventions, and Modeling, 109510M, 2019
- [45] Müller S, Jiang L, Nülle K, Schneider V, Kobler JP, **Kahrs LA**, Ortmaier T. *Automated Mechanism Generation for 3D Printed Parallel Kinematic Patient Specific Stereotactic Frames*, SMIT2018-IBEC2018 Joint Conference, Seoul, South Korea, 2018
- [46] Müller S, Rawohl M, **Kahrs LA**, Ortmaier T. *Robot Based Evaluation of the Quality of Form Closure of Patient Specific Instruments*, SMIT2018-IBEC2018 Joint Conference, Seoul, South Korea, 2018
- [47] Modes V, Ihler S, Ortmaier T, Nabavi A, **Kahrs LA**, Burgner-Kahrs J. *Towards Concentric Tube Robots for Microsurgery: First Results in Eye-to-hand Visual Servoing*, Hamlyn Symposium on Medical Robotics 2018, London, 77-78
- [48] Just C, Ortmaier T, **Kahrs LA**. *A user study on robot path planning inside a Virtual Reality environment*, Proc. 50th International Symposium on Robotics (ISR 2018), 462-467
- [49] Ilango S, Knöchelmann M, **Kahrs LA**, Wolf A, Lachmayer R, Ortmaier T. *User evaluation study on illumination requirements to design an augmented reality projector for open liver surgeries*, SPIE Optical Systems Design 2018, Illumination Optics V, 106930R (14 pages)
- [50] Rau TS, Uhlenbusch L, Witte S, Lexow J, **Kahrs LA**, Lenarz T, Ortmaier T, Majdani O. *Determination of error sources and values for an individually mouldable surgical targeting system*, Proc. 32th International Congress on Computer Assisted Radiology and Surgery, (CARS 2018)
- [51] Müller S, Janka C, **Kahrs LA**, Ortmaier T. *Intraoperative Sterile Molding of Patient Specific Templates for Minimally Invasive Cochlear Implant Surgery*, Proc. Russian German Conference on Biomedical Engineering, 2018
- [52] Fast JF, Ptok M, Jungheim M, Szymanski R, Ortmaier T, **Kahrs LA**. *Towards Fully Automated Determination of Laryngeal Adductor Reflex Latencies through High-Speed Laryngoscopy Image Processing*, Proc. Bildverarbeitung für die Medizin 2018, 121-126
- [53] Thoben C, **Kahrs LA**, Mueller S, Gaa J, Ortmaier T, Reinecke T, Martin J, Bakes K, Zimmermann S. *Echtzeitüberwachung der Position eines Cochlea-Implantats während der Insertion in ein Innenohrphantom*, tm-Technisches Messen 2017;84(s1):98-101
- [54] **Kahrs LA**, Appel W, Plascinkas M, Müller S, Tauscher S, Ortmaier T. *Milling with a Light Weight Robot for Volumetric Bone Removal*, Proc. 16. Annual Meeting German Society of Computer and Robot Assisted Surgery (CURAC 2017), 226-227
- [55] Laves MH, Schoob A, **Kahrs LA**, Fründt T, Suthau T, Nabavi A, Ortmaier T. *Towards Intra-Operative Surface Reconstruction for Operating Microscopes in Neurosurgery*, Proc. 16. Annual Meeting German Society of Computer and Robot Assisted Surgery (CURAC 2017), 260-261
- [56] Majdani O, Kluge M, Lexow GJ, John S, **Kahrs LA**, Ortmaier T, Müller S, Gaa J, Nülle K, Lenarz T, Rau TS. *Minimally invasive, mini-stereotactic approach for Cochlear Implant Surgery (CI): RoboJig*, Proc. 16. Annual Meeting German Society of Computer and Robot Assisted Surgery (CURAC 2017), 37-38

- [57] Kundrat D, Schoob A, Niemeyer N, **Kahrs LA**, Ortmaier T. *Herstellung und Evaluierung eines Stimmlippen-Gewebephantoms für die multimodale Bildgebung und Laserablation*, Proc. 16. Annual Meeting German Society of Computer and Robot Assisted Surgery (CURAC 2017), 44-49
- [58] Schneider V, Müller S, Nülle K, **Kahrs LA**, Majdani O, Ortmaier T. *Experimental accuracy optimization of a parallel kinematic tool for minimally invasive cochlear-implant surgery*, Proc. 16. Annual Meeting German Society of Computer and Robot Assisted Surgery (CURAC 2017), 202-207
- [59] Tauscher S, Fuchs A, Baier F, **Kahrs LA**, Ortmaier T. *High accuracy drilling with an image guided light weight robot: autonomous vs intuitive feed control*, Proc. 31th International Congress on Computer Assisted Radiology and Surgery, Barcelona, Spain (CARS 2017)
- [60] Kraß S, Tauscher S, **Kahrs LA**, Tokuda J, Kikinis R. *Integration of a light weight robot control with an advanced medical image processing platform for optimizing accuracy in medical interventions*, Proc. BMTMedPhys 2017, Biomed. Eng./Biomed. Tech. 2017;62(s1):S28
- [61] Kraemer M, **Kahrs L**, Friese KI, von Falck C, Hurschler C. *Inter- and intra-operator reliability in patient-specific template positioning for hip arthroplasty – A cadaver study*. Proc. 10. Annual Meeting German Society Biomechanics (DGfB 2017), 4-5
- [62] Laves MH, Schoob A, **Kahrs LA**, Pfeiffer T, Huber R, Ortmaier T. *Feature tracking for automated VOI stabilization on 4D-OCT images*, SPIE Medical Imaging 2017, 101350W, doi: 10.1117/12.2255090
- [63] Bergmeier JN, Fast JF, Ortmaier T, **Kahrs LA**. *Panorama imaging for image-to-physical registration of narrow drill holes inside spongy bone*, SPIE Medical Imaging 2017, 1013507, doi: 10.1117/12.2254417
- [64] Bergmeier J, Daentzer D, Majdani O, Ortmaier T, **Kahrs LA**. *Image-to-physical registration based on endoscopy of a drill hole inside bone*, Proc. 30th International Congress on Computer Assisted Radiology and Surgery, Heidelberg, Germany (CARS 2016) doi: 10.1007/s11548-016-1412-5
- [65] **Kahrs LA**. *Review on Embedded Sensors and Actuators for Gentle Insertion of Cochlear Implants*, Proc. International Conference on new Actuators & Exhibition on Smart Actuators and Drive Systems, 159-62, ISBN 978-3-933339-26-3, 2016
- [66] Müller S, Krämer M, Utz M, Hurschler C, **Kahrs LA**, Ortmaier T. *Modular patient specific toolset for total hip arthroplasty*. Proc. 28th International Conference of the international Society for Medical Innovation and Technology (iSMIT) and the 4th Edition of the Design of Medical Devices - Europe (DMD-EU) Conference, 89, 2016
- [67] Kundrat D, Fuchs A, Schoob A, **Kahrs LA**, Ortmaier T. *Endoluminal non-contact soft tissue ablation using fiber-based Er:YAG laser delivery*, Proc. SPIE 9702, Optical Fibers and Sensors for Medical Diagnostics and Treatment Applications XVI, 97020E, 1-8, doi: 10.1117/12.2211796, 2016
- [68] Kundrat D, Schoob A, **Kahrs LA**, Ortmaier T. *First Study on a Monolithically Manufactured Variable-Length Continuum Robot with Hybrid Actuation*, Proc. 15. Annual Meeting German Society of Computer and Robot Assisted Surgery e.V. (CURAC 2016), 87-92, ISBN 978-3-86247-595-7
- [69] Mueller S, Kraemer M, Eder M, Gaa J, **Kahrs LA**, Hurschler C, Ortmaier T. *Intraoperative Verification of Patient Specific Instrument Orientation using 2D Imaging with Embedded*

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