PD Dr. Kate Gerber (née Gavaghan)

Publications & Scientific Output

ResearchGate	https://www.researchgate.net/profile/Kate_Gavaghan2/publications
Google Scholar	https://scholar.google.com/citations?user=c38qEcEAAAAJ&hl=en
ORCID	https://orcid.org/0000-0003-4086-4973

Peer-Reviewed Publications in International Scientific Journals

1. G. Zeng, F. Schmaranzer, C. Degonda, N. Gerber**, K. Gerber**, M. Tannast, J. Burger, K. Siebenrock, G. Zheng, T. Lerch, (2021). MRI-based 3D models of the hip joint enables radiation-free computer-assisted planning of periacetabular osteotomy for treatment of hip dysplasia using deep learning for automatic segmentation. European journal of radiology open, 8, p. 100303.
2. G. Zeng, F. Schmaranzer, C. Degonda, N. Gerber, **K. Gerber**, M. Tannast, J. Burger,a K. Siebenrock, G. Zheng, T. Lerch, Three-dimensional MRI Bone Models of the Hip Joint Using Deep Learning: Dynamic Simulation of Hip Impingement for FAI patients enables Diagnosis of Intra-and Extraarticular Hip Impingement. Orthop. J. Sports Med.
3. D. Schneider, Jan Hermann, **K. Gerber**, J. Ansó, M. Caversaccio, S. Weber, L. Anschuetz, Noninvasive registration strategies and advanced image guidance technology for submillimeter surgical navigation accuracy in the lateral skull base, Otology & Neurotology, December 2018, Volume 39 (10), p 1326–1335
4. M. Caversaccio, W. Wimmer, J. Anso, G. Mantokoudis, N. Gerber, C. Rathgeb, D. Schneider, J. Hermann, F. Wagner, O. Scheidegger, M. Huth, L. Anschuetz, M. Kompis, T. Williamson, B. Bell**, K. Gavaghan**, S. Weber (2019), Robotic middle ear access for cochlear implantation: first in man, PLoS ONE, 2019; 14(8):e0220543
5. J. Ansó, O. Scheidegger, W. Wimmer, **K. Gavaghan**, N. Gerber, D. Schneider, J. Hermann, C. Rathgeb, C. Dür, KM. Rösler, G. Mantokoudis, M. Caversaccio, S. Weber, "Neuromonitoring During Robotic Cochlear Implantation: Initial Clinical Experience", Ann Biomed Eng. 2018 Oct;46(10):1568-1581
6. C. Rathgeb, F. Wagner, W. Wimmer, N. Gerber, T. Williamson, L. Anschütz, S. Weder, M. Stadelmann, G. Braga, J. Anso, M. Caversaccio, S. Weber, and **K. Gavaghan**, "The accuracy of image-based safety analysis for robotic cochlear implantation," *Int. J. Comput. Assist. Radiol. Surg.*, Aug. 2018.
7. Ansó, J., Balmer, T., Jegge, Y., Kalvoy H., Bell, B., Dür, C., Calvo, E., Williamson, T., Gerber, N., Ferrario, D., Forterre, F., Büchler, Ph., Stahel, A., Caversaccio, M., Weber, S., **Gavaghan, K**. (2018). Electrical Impedance to Assess Facial Nerve Proximity during Robotic Cochlear Implantation. IEEE Trans Biomed Eng., 2018, online, doi: 10.1109/TBME.2018.2830303
8. Lu, P., Barazzetti, L., Chandran, V., **Gavaghan, K**., Weber, S., Gerber, N., Reyes M. (2017). Highly accurate Facial Nerve Segmentation Refinement from CBCT/CT Imaging using a Super Resolution Classification Approach. IEEE Trans Biomed Eng. 2017 Apr 25.
9. Feldmann, A., **Gavaghan, K**., Stebinger, M., Williamson, T., Weber, S., & Zysset, P. (2017). Real-time Prediction of Temperature Elevation during Robotic Bone Drilling using the Torque signal. Ann Biomed Eng. 2017 May 5.
10. T. Williamson, **K. Gavaghan**, N. Gerber, S. Weder, L. Anschuetz, F. Wagner, C. Weisstanner, G. Mantokoudis, M. Caversaccio, S. Weber "Population Statistics Approach for Safety Assessment in Robotic Cochlear Implantation" Otology & neurotology: official publication of the American Otological Society, American Neurotology Society [and] European Academy of Otology and Neurotology, 2017 Jun;38(5):759-764

11. Weber, S., **Gavaghan, K**., Wimmer, W., Williamson, T., Gerber, N., Anso, J., Bell, B, Feldmann, A., Rathgeb, C., Matulic, M., Stebinger, M., Schneider, D., Mantokoudis, G., Scheidegger, O., Wagner, F., Kompis, M., Caversaccio, M. (2017). Instrument flight to the inner ear. Science Robotics, 2(4).
12. Caversaccio, M., **Gavaghan, K.,** Wimmer, W., Williamson, T., Ansò, J., Mantokoudis, G., Gerber, N., Rathgeb, C., Feldmann, A., Wagner, F., Scheidegger, O., Kompis, M., Weisstanner, C., Zoka-Assadi, M., Roesler, K., Anschuetz, L., Huth, M., Weber, S. (2017). Robotic cochlear implantation: surgical procedure and first clinical experience. Acta Oto-Laryngologica, 6489(March), 1–11.
13. Wyss, T., Anso, J., Muntane, E., **Gavaghan, K.,** Weber, S., Stahel, A., Büchler, P., (2017). In-Vivo Electrical Impedance Measurement in Mastoid Bone. Annals of biomedical engineering, 45(4), pp. 1122-1132. Springer

Peer-Reviewed Conference Papers

1. H. Hess, P. Gussarow, J.T. Rojas, S.T. Weber, A. Hayoz, M.A. Zumstein, **K. Gerber**. **Fully Automatic Analysis of Posterosuperior Full-Thickness Rotator Cuff Tears from MRI**. Proceedings of The 20th Annual Meeting of the International Society for Computer Assisted Orthopaedic Surgery, CAOS, 5:103–6 (2022)
2. H. Hess, M. A. Zumstein, L. Dommer, M. Schär, A. Hayoz, G. Zeng, A. Ruckli, J. Burger, N. Gerber, **K. Gerber**, **Automatic shoulder bone segmentation from CT arthrograms based on deep learning**, Int J CARS 16, 90–91 (2021)
3. A. Ruckli, F. Schmaranzer, T. Lerch, A. Boschung, S. Steppacher, J. Burger, M. Tannast, K. Siebenrock, N. Gerber, **K. Gerber**, Deep learning for automatic quantification of AVN of the femoral head on 3D MRI in patients eligible for joint preserving surgery: A pilot study. Int J CARS 16, 85–86 (2021)
4. G. Zeng, T. Lerch, F. Schmaranzer, G. Zheng, J. Burger, **K. Gerber**, M. Tannast, K. Siebenrock, N. Gerber, Zeng, G. et al. Semantic Consistent Unsupervised Domain Adaptation for Cross-Modality Medical Image Segmentation. in Medical Image Computing and Computer Assisted Intervention – MICCAI 2021,vol. 12903 201–210 (2021)
5. G. Zeng, F. Schmaranzer, T. Lerch, A. Boschung, G. Zheng, J. Burger, **K. Gerber**, M. Tannast, K. Siebenrock, Y. Kim, N. Eduardo N. Novais, N. Gerber, "Entropy Guided Unsupervised Domain Adaptation for Cross-Center Hip Cartilage Segmentation from MRI", The Medical Image Computing and Computer Assisted Intervention Society Conference, MICCAI, (2020)
6. Ansó, J., Wimmer, W., Rathgeb, C., Gerber, N., Hermann, J., Williamson, T., Mantokoudis, G., Weber, S., **Gavaghan, K**., (2017). Robotic Cochlear Implantation – First clinical experiences, in: German Society of Computer and Robotic Assisted Surgery CURAC Conference, 2017.
7. Williamson,T., Wimmer, W., **Gavaghan, K**., Gerber, N., Du, X., Brett, P., Coulson, C:, Proops, D., Caversaccio, M., Weber, S., Image-Guided Robotic Cochlear Implant Surgery, In Encyclopedia of Medical Robotics, Volume 3, Ed: Desai, J. World Scientific Publishing, 2018, ISBN: 978-981-3232-22-8
8. **K. Gavaghan**, M. Fusaglia, M. Peterhans, S. Weber, Augmented Reality for Laparoscopic Liver Surgery, in Laparoscopic Liver, Pancreas, Biliary Surgery: Textbook and Video Atlas, Edited by Brice Gayet and Claudius Conrad, Wiley, 2017, ISBN: 978-1-118-78117-3.

Patents

1. EP17179063.7, Intervention device with electrodes, Inventors: Juan Anso, **Kate Gerber**, Stefan Weber, Kerstin Thorwarth, Arati Chacko, Hans Josef Hug, Assignee: Universität Bern, Switzerland
2. US62383460 / WO2018042400, System and method for determining proximity of a surgical tool to key anatomical features, Inventors: Juan Anso, Nicolas Gerber, **Kate Gerber**, Tom Williamson, Stefan Weber, Assignee: Universität Bern, Switzerland

Oral Contributions to International Conferences

3. J. Menze, H. Hess, S. Ferguson, M. Zumstein, N. Gerber, J. Burger, **K. Gerber**, **How does the glenoid size affect rotator cuff loading? a musculoskeletal analysis**. in 26th Congress of the European Society of Biomechanics 286 (2021)
4. A. Ruckli, T. Lerch, A. Boschung, S. Steppacher, N. Gerber, **K. Gerber**, J. Burger, M. Tannast, K. Siebenrock, F. Schmaranzer (April 2021). Deep learning for fully-automatic quantification of avascular necrosis of the femoral head on 3D hip MRI in young patients eligible for joint preserving hip surgery: A pilot study. Skeletal radiology, 50, p. 1060. Springer
5. Menze, J. F. H. Hess, S. Ferguson, M. Zumstein, N. Geber, J. Burger, **K. Gerber**, **A Musculoskeletal Parameter Study of Scapula Characteristics Affecting Rotator Cuff Muscle Forces**. in ISB 2021 (2021)
6. J. Menze, T. Rojas, S. Ferguson, M. Zumstein, E. DePieri, **K. Gerber**, **Tendon transfers reestablish shoulder rotations after rotator cuff lesions**. in ISB TGCS 2021 (2021)
7. Meier Malin Kristin (Bern), Zeng G., Boschung A., Lerch T., Gerber N., **Gerber Kate**, Siebenrock K., Tannast M., Steppacher S., Schmaranzer F, Deep Learning-basierte vollautomatische 3D-MRT-Modelle von Hüftknorpel und Labrum: Eine Pilotstudie. in 38. AGA Kongress (Arthroskopie und Gelenkchirurgie) 229 (2021)
8. Y. Jegge, H. Kalvoy, A. Sauter, C. Rathgeb, **K. Gavaghan**, M. Caversaccio, S. Weber, and J. Ansó, "Feasibility of Nerve Proximity Detection using Tissue-Impedance Spectroscopy during Robotic Cochlear Implantation," in CARS: Computer Assisted Radiology and Surgery Proceedings of the 31th International Congress and Exhibition, 2018.
9. Ansó, J., Scheidegger, O., Perroud, L., Caversaccio M., **Gavaghan, K**., Weber, S., "Facial nerve monitoring during robotic cochlear implementation: first patient experience" in CARS: Computer Assisted Radiology and Surgery Proceedings of the 30th International Congress and Exhibition, 2017.
10. Ansó, J., Scheidegger, O., Wimmer, W., Schneider, D., Hermann, J., Rathgeb, C., Gerber, N., Stebinger, M., **Gavaghan, K**., Mantokoudis, G., Caversaccio, M., Weber, S., "Neuromonitoring during robotic cochlear implantation - first clinical experience," The Hamlyn Symposium on Medical Robotics, 2017.

Research Project Translation

HEARO	CAScination AG, Bern, Switzerland, 2016, https://www.cascination.com/en/hearo
OTOPLAN	CAScination AG, Switzerland, 2016, https://www.cascination.com/en/otoplan