

List of Publications and Supervised Doctorates

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Reviewed Journal Papers

- 1) **Katzmann, A., Taubmann, O., Ahmad, St., Mühlberg, A., Sühling, M., Gross, H.-M.** Explaining clinical decision support systems in medical imaging using cycle-consistent activation maximization. *Neurocomputing*, vol. 458 (2021), pp. 141-156, Elsevier
- 2) **Röhner, E., Mayfarth, A., Sternitzke, Ch., Layher, F., Scheidig, A., Gross, H.-M., Matziolis, G., Böhle, S., Sander, K.** Mobile robot-based gait training after Total Hip Arthroplasty (THA) improves walking in biomechanical gait analysis. *Journal of Clinical Medicine, Special Issue on Recent Advances in Arthroplasty*, 10 (2021) 11, pp. 2416 ff. (11 pages), MDPI, <https://doi.org/10.3390/jcm10112416>
- 3) **Scheidig, A., Schütz, B., Trinh, T.Q., Vorn dran, A., Mayfarth, A., Sternitzke, Ch., Röhner, E., Gross, H.-M.** Robot-assisted gait self-training: assessing the level achieved. *Sensors*, 21 (2021) pp. 6213 ff (15 Pages), MDPI, <https://doi.org/10.3390/s21186213>
- 4) **Wengefeld, T., Lewandowski, B., Seichter, D., Pfennig, L., Müller, St. Gross, H.-M.** Real-time person orientation estimation and tracking using colored point clouds. *Robotics and Autonomous Systems (RAS)*, vol. 135 (2021) 103665 ff. (15 pages), Elsevier, <https://doi.org/10.1016/j.robot.2020.103665>
- 5) **Zhang, Y., Müller, St., Stephan, B., Gross, H.-M., Notni, G.** Point Cloud Hand-Object Segmentation using Multi-Modal Imaging with Thermal and Color Data for Safe Robotic Object Handover. *Sensors* vol. 21 (2021), 5676 ff. (16 pages), MDPI, <https://doi.org/10.3390/s21165676>
- 6) **Müller, St., Wengefeld, T., Trinh, T. Q., Aganian, D., Eisenbach, M. Gross, H.-M.** A Multi-Modal Person Perception Framework for Socially Interactive Mobile Service Robots. *Sensors* vol. 20 (2020) 3, 722, 18 pages; <https://doi.org/10.3390/s20030722>
- 7) **Gross, H.-M., Scheidig, A., Debes, K., Einhorn, E., Eisenbach, M., Müller, St., Schmiedel, Th., Trinh, T. Q., Weinrich, Ch., Wengefeld, T., Bley, A., Martin, Ch.** ROREAS - Robot Coach for Walking and Orientation Training in Clinical Post-Stroke Rehabilitation: Prototype Implementation and Evaluation in Fields Trials. *Autonomous Robots (AR)*, vol. 41 (2017) 3, pp. 679-698, Springer
- 8) **Doering, N., Richter, K., Gross, H.-M., Schroeter, Ch., Mueller, S., Volkhardt, M., Scheidig, A., Debes, K.** Robotic Companions for Older People: A Case Study in the Wild. *Studies in Health Technology and Informatics* vol. 219 (2016), pp. 147-152
- 9) **Doering, N., Poeschl, S., Gross, H.-M., Bley, A., Martin, Ch., Boehme, H.-J.** User-Centered Design and Evaluation of a Mobile Shopping Robot. *Int. Journal of Social Robotics (JSR)*, vol. 7 (2015), pp. 203-225
- 10) **Einhorn, E., Gross, H.-M.** Generic NDT Mapping in Dynamic Environments and its Application for Lifelong SLAM. *Robotics and Autonomous Systems (RAS)*, vol. 69 (2015), pp. 28-39
- 11) **Vollmer, Ch., Hellbach, S., Eggert, J., Gross, H.-M.** Sparse Coding of Human Motion Trajectories with Non-Negative Matrix Factorization. *Neurocomputing (NC)* vol. 124 (2014), pp. 22-32
- 12) **Kirstein, St., Wersing, H., Gross, H.-M., Körner, E.** A Life-Long Learning Vector Quantiza-

- tion Approach for Interactive Learning of Multiple Categories. *Neural Networks (NN)* vol. 28 (2012), pp. 90-105
- 13) **Einhorn, E., Schröter, Ch., Gross, H.-M.** Attention-Driven Monocular Scene Reconstruction for Obstacle Detection, Robot Navigation and Map Building. *Robotics and Autonomous Systems (RAS)*, vol. 59 (2011) 5, pp. 296-309, Elsevier
 - 14) **Poeschl, S., Doering, N., Gross, H.-M., Bley, A., Martin, Ch., Boehme, H.-J.** Roboter-Gestuetzte Artikelsuche im Baumarkt. *Zeitschrift fuer Evaluation (ZfEv)*, vol. 10 (2011) 1, pp. 99-132
 - 15) **Barrois, B., Konrad, M., Woehler, Ch., Gross, H.-M.** Resolving Stereo Matching Errors due to Repetitive Structures Using Model Information. *Pattern Recognition Letters (PRL)*, vol. 31, Issue 12 (2010), pp. 1683-1692, Elsevier
 - 16) **Martin, Ch., Steege, F.-F., Gross, H.-M.** Estimation of Pointing Poses for Visually Instructing Mobile Robots under Real World Conditions. *Robotics and Autonomous Systems (RAS)*, vol. 58 (2010) 2, pp. 174-185, Elsevier
 - 17) **Arras, K., Burgard, W., Gross, H.-M.** Special Issue of Selected Papers from the 2007 European Conference on Mobile Robots. *Robotics and Autonomous Systems (RAS)*, vol. 58 (2010) 2, pp. 131-132, Elsevier
 - 18) **Hellbach, S., Eggert, J., Koerner, E., Gross, H.-M.** Experimental Evaluation of Approaches for Long Term Prediction of Human Movement Trajectories. *Australian Journal of Intelligent Information Processing Systems (AJIIPS)*, vol. 10 (2009) 3
 - 19) **Kirstein, St., Denecke, A., Hasler, St., Wersing, H., Gross, H.-M., Koerner, E.** A Vision Architecture for Unconstrained and Incremental Learning of Multiple Categories. in *Memetic Computing (MC)*, vol. 1 (2009), 4, pp. 291-304
 - 20) **Woehler, Chr., d'Angelo, P., Krueger, L., Kuhl, A., Gross, H.-M.** Monocular 3D Scene Reconstruction at Absolute Scale. *ISPRS Journal of Photogrammetry and Remote Sensing (ISPRS)*, vol. 64 (2009), 6, pp. 529-540, Elsevier 2009
 - 21) **Richarz, J., Scheidig, A., Martin, Ch., Mueller, St., Gross, H.-M.** A Monocular Pointing Pose Estimator for Gestural Instruction of a Mobile Robot *Int. Journal of Advanced Robotic Systems (IJARS)*, vol. 4, No. 1 (2007), pp. 139-150
 - 22) **Gross, H.-M.** Learning and Self-Organization of Behavior - Service. *Kuenstliche Intelligenz (KI)*, vol. 3 (2006), pp. 43-44, BoettcherIT Verlag, Bremen
 - 23) **Martin, Ch., Schaffernicht, E., Scheidig, A., Gross, H.-M.** Multi-Modal Sensor Fusion Using a Probabilistic Aggregation Scheme for People Detection and Tracking. *Robotics and Autonomous Systems (RAS)*, vol. 54 (2006) 9, pp. 721-728, Elsevier ScienceDirect
 - 24) **Scheidig, A., Mueller, St., Gross, H.-M.** User-Adaptive Interaction with Social Service Robots. *Kuenstliche Intelligenz (KI)*, vol. 3 (2006), pp. 31-34, BoettcherIT Verlag, Bremen
 - 25) **Wilhelm, T., Boehme, H.-J., Gross, H.-M.** A Multi-Modal System for Tracking and Analyzing Faces on a Mobile Robot. *Robotics and Autonomous Systems (RAS)*, vol. 48 (2004), pp. 31-40, Elsevier Science
 - 26) **Boehme, H.-J., Wilhelm, T., Key, J., Schauer, C., Schroeter, Chr., Gross, H.-M., Hempel, T.** An Approach to Multi-Modal Human-Machine Interaction for Intelligent Service Robots. *Robotics and Autonomous Systems (RAS)*, vol. 44 (2003), pp. 83-96, Elsevier Science
 - 27) **Stephan, V., Gross, H.-M.** Visuomotor Anticipation - A Powerful Approach to Behavior-Driven Perception. *Kuenstliche Intelligenz (KI)*, vol. 2 (2003), pp. 12-17
 - 28) **Stephan, V., Debes, K., Gross, H.-M., Wintrich, F., Wintrich, H.** A New Control Scheme for Combustion Processes Using Reinforcement Learning Based on Neural Networks. *Int. Journal on Computational Intelligence and Applications (IJCIA)*, vol. 1 (2001) 2, pp. 121-136, Imperial College Press 2001
 - 29) **Corradini, A., Boehme, H.-J., Gross, H.-M.** A Hybrid Stochastic-Connectionist Approach to Gesture Recognition. *Int. Journal on Artificial Intelligence Tools (IJAIT)*, vol.9 (2000), no. 2, pp. 177-204
 - 30) **Gross, H.-M., Boehme, H.-J., Key, J., Wilhelm, T.** The PERSES Project - A Vision-Based Interactive Mobile Shopping Assistant. *Kuenstliche Intelligenz (KI)*, vol. 4 (2000), pp. 34-36
 - 31) **Gross, H.-M., Heinze, A., Seiler, T., Stephan, V.** Generative Character of Perception: A Neural Architecture for Sensorimotor Anticipation. *Neural Networks, 1999 Special Issue "Organisation of Computation in Brain-like Systems"* (NN), vol. 12 (1999), pp. 1101-1129
 - 32) **Thust, S., Pomierski, T., Schade, H.-P., Gross, H.-M.** Automatische Farbkorrektur fuer Film, Video und Photo. *Fernseh- und Kino-Technik (FKTG)*, vol. 51 (1997), no. 3, pp. 589-592 [A]
 - 33) **Hamker, F.-H., Gross, H.-M.** Region Finding for Attention Control in Consideration of Subgoals. *Neural Network World, International Journal on Neural and Mass-Parallel Computing and Information Systems (NNW)*, vol. 6 (1996), no. 3, pp. 305-313 [5, E]
 - 34) **Gross, H.-M., Boehme, H.-J., Debes, K.** A Neural Network Hierarchy for Data and Knowledge Controlled Selective Visual Attention. *Chinese Journal of Biomedical Engineering (CJBME)*, vol. 4 (1994) pp. 363-368
 - 35) **Schwind, J., Gross, H.-M.** Verfahren zur online-Minimierung von Lidschlag- und vertikalen Au-

genbewegungsartefakten im EEG. *EEG-EMG Zeitschrift fuer Elektroenzephalographie, Elektromyographie und verwandte Gebiete*, vol. 19 (1988), pp. 96-100

Reviewed International Conference and Workshop Papers

- 1) **Aganian, D., Eisenbach, M., Wagner, J., Seichter, D., Gross, H.-M.** Revisiting Loss Functions for Person Re-identification. in: *Int. Conf. on Artificial Neural Networks (ICANN)*, Bratislava, pp. 30-42, Springer 2021
- 2) **Balada, Ch., Eisenbach, M., Gross, H.-M.** Evaluation of Transfer Learning for Visual Road Condition Assessment. in: *Int. Conf. on Artificial Neural Networks (ICANN)*, Bratislava, pp. 540-551, Springer 2021
- 3) **Döring, N., Mikhailova, V., Brandenburg, K.-H., Broll, W., Gross, H.-M., Werner, St., Raake, A.** Saying “Hi” to Grandma in Nine Different Ways: Established and Innovative Communication Media in the Grandparent-Grandchild Relationship. in: *American Psychological Association’s conference on Technology, Mind & Society*, 2021
- 4) **Eisenbach, M., Aganian, D., Köhler, M., Stephan, B., Schroeter, Chr., Gross, H.-M.** Visual Scene Understanding for Enabling Situation-Aware Cobots. in: *IEEE Int. Conf. on Automation Science and Engineering (CASE)*, IEEE 2021
- 5) **Fischer, K., Simon, M., Oelsner, F., Milz, St., Gross, H.-M., Maeder, P.** StickyPillars: Robust and Efficient Feature Matching on Point Clouds using Graph Neural Networks. in: *IEEE Int. Conf. on Computer Vision and Pattern Recognition (CVPR)*, pp. 313-323, IEEE 2021
- 6) **Müller, St., Stephan, B., Gross, H.-M.** MDP-based Motion Planning for Grasping in Dynamic Szenarios. in: *Europ. Conf. on Mobile Robotics (ECMR)*, Bonn, Germany, 8 pages, 2021, IEEE 2021
- 7) **Seichter, D., Köhler, M., Lewandowski, B., Wengefeld, T., Gross, H.-M.** Efficient RGB-D Semantic Segmentation for Indoor Scene Analysis. in: *IEEE Int. Conf. on Robotics and Automation (ICRA)*, Xian, China, pp. 13525-13531, IEEE 2021
- 8) **Stricker, R., Aganian, D., Sesselmann, M., Seichter, D., Engelhardt, M., Spielhofer, R., Hahn, M., Hautz, A., Debes, K., Gross, H.-M.** Road Surface Segmentation - Pixel Perfect Distress and Object Detection for Road Assessment. in: *IEEE Int. Conf. on Automation Science and Engineering (CASE)*, pp. 1789-1796, IEEE 2021
- 9) **Schnuerer, Th., Probst, M., Gross, H.-M.** Relational Concepts in Deep Reinforcement Learning: Emergence and Representation. in: *Int. Workshop “Concepts in Action: Representation, Learning, and Application” (CARLA)*, Bolzano, Italy, 3 pages, OpenReview.Net 2020
- 10) **Katzmann, A. Muehlberg, A., Suehling, M., Noerenberg, D., Holch, J. W., Gross, H.-M.** Deep Random Forests for Small Sample Size Prediction with Medical Imaging Data. in: *Int. Symposium on Biomedical Imaging (ISBI)*, Iowa City, USA, pp.1543-47, IEEE 2020
- 11) **Lembach, J., Stricker, R., Gross, H.-M.** Efficient Implementation of Regional Mutual Information for the Registration of Road Images. in: *Int. Conf. on Image Processing Theory, Tools and Applications (IPTA)*, Paris, France, 6 pages, IEEE 2020
- 12) **Lewandowski, B., Wengefeld, T. Mueller, S., Jenny, M., Glende, S., Schroeter, Ch., Bley, A., Gross, H.-M.** Socially Compliant Human-Robot Interaction for Autonomous Scanning Tasks in Supermarket Environments. in: *IEEE Int. Symp. on Robot and Human Interactive Communication (RO-MAN)*, Naples, Italy, pp. 363-370, IEEE 2020
- 13) **Seichter, D., Lewandowski, B., Hoechemer, D., Wengefeld, T., Gross, H.-M.** Multi-Task Deep Learning for Depth-based Person Perception in Mobile Robotics. in: *IEEE/RSJ Int. Conf. on Intelligent Robots and Systems (IROS)*, Las Vegas, USA, pp. 10497-10504, IEEE 2020
- 14) **Trinh, T. Q., Vorndran, A., Schuetz, B., Jaeschke, B., Mayfarth, A., Scheidig, A., Gross, H.-M.** Autonomous Mobile Gait Training Robot for Orthopedic Rehabilitation in a Clinical Environment. in: *Int. Symp. on Robot and Human Interactive Communication (RO-MAN)*, Naples, Italy, pp. 580-587, IEEE 2020
- 15) **Wengefeld, T., Hoechemer, D., Lewandowski, B., Koehler, M., Beer, M., Gross, H.-M.** A Laser Projection System for Robot Intention Communication and Human Robot Interaction. in: *Int. Symp. on Robot and Human Interactive Communication (RO-MAN)*, Naples, Italy, pp. 259-265, IEEE 2020
- 16) **Eisenbach, M., Stricker, R., Sesselmann, M., Seichter, D., Gross, H.-M.** Enhancing the Quality of Visual Road Condition Assessment by Deep Learning. in: *World Road Congress 2019, Abu Dhabi, UAE*, 13 pages, 2019
- 17) **Gross, H.-M., Scheidig, A., Mueller, St., Schuetz, B., Fricke, Ch., Meyer, S.** Living with a Mobile Companion Robot in your Own Apartment - Final Implementation and Results of a 20-Weeks Field Study with 20 Seniors. in: *IEEE Int. Conf. on Robotics and Automation (ICRA)*, Montreal, Canada, pp. 2253-2259, IEEE 2019
- 18) **Katzmann, A. Muehlberg, A., Suehling, M., Noerenberg, D., Gross, H.-M.** Deep Meta-memory - A Generic Framework for Stabilized One-Shot Confidence Estimation in Deep Neural

- Networks and its Application on Colorectal Cancer Liver Metastases Growth Prediction. in: *IEEE Int. Symposium on Biomedical Imaging (ISBI)*, pp. 1298-1302, IEEE 2019
- 19) **Katzmann, A., Muehlberg, A., Suehling, M., Noerenberg, D., Maurus, St., Holch, J. W., Heinemann, V., Gross, H.-M.** Computed Tomography Image-Based Deep Survival Regression for Metastatic Colorectal Cancer Using a Non-proportional Hazards Model. in: *Predictive Intelligence in Medicine (PRIME), Shenzhen, China*, LNCS 11843, pp. 73-80, Springer 2019
 - 20) **Lewandowski, B., Liebner, J., Wengefeld, T., Mueller, St., Gross, H.-M.** A Fast and Robust 3D Person Detector and Posture Estimator for Mobile Robotic Applications. in: *IEEE Int. Conf. on Robotics and Automation (ICRA), Montreal, Canada*, pp. 4869-75, IEEE 2019
 - 21) **Lewandowski, B., Seichter, D., Wengefeld, T., Pfennig, L., Drumm, H., Gross, H.-M.** Deep Orientation: Fast and Robust Upper Body Orientation Estimation for Mobile Robotic Applications. in: *IEEE/RSJ Int. Conf. on Intelligent Robots and Systems (IROS), Macau*, pp. 441-48, IEEE 2019
 - 22) **Liebner, J., Scheidig, A., Gross, H.-M.** Now I Need Help! Passing Doors and Using Elevators as an Assistance Requiring Robot. in: *Int. Conf. on Social Robotics (ICSR), Madrid, Spain*, pp. 527-37, Springer 2019
 - 23) **Milz, St., Simon, M., Fischer, K., Poepperl, M., Gross, H.-M.** Points2Pix: 3D Point-Cloud to Image Translation Using Conditional GANs. in: *Pattern Recognition (DAGM GPCR), Dortmund, Germany*, LNCS vol. 11824, pp. 387-400, Springer 2019
 - 24) **Mueller, St., Seichter, D., Gross, H.-M.** Cross-Talk Compensation in Low-Cost Resistive Pressure Matrix Sensors. in: *IEEE Int. Conf. on Mechatronics (ICM), Ilmenau, Germany*, pp. 232-237, IEEE 2019
 - 25) **Scheidig, A., Jaeschke, B., Schuetz, B., Trinh, T. Q., Vorndran, A., Mayfarth, A., Gross, H.-M.** May I Keep an Eye on Your Training? Gait Assessment Assisted by a Mobile Robot. in: *IEEE/RAS-EMBS Int. Conf. on Rehabilitation Robotics (ICORR)*, pp. 701-708, IEEE 2019
 - 26) **Schnuerer, Th., Fuchs, St., Eisenbach, M., Gross, H.-M.** Real-Time 3D Pose Estimation from Single Depth Images. in: *Proc. Int. Joint Conf. on Computer Vision, Imaging and Computer Graphics - Theory and Applications (VISAPP), Prague, Czech Republic*, pp. 716-724, 2019
 - 27) **Saemann, T., Amende, K., Milz, St., Gross, H.-M.** Robust Semantic Video Segmentation through Confidence-based Feature Map Warping. in: *ACM Computer Science in Cars Symposium (CSCS), Kaiserslautern, Germany*, 9 pages, ACM 2019
 - 28) **Saemann, T., Amende, K., Milz, St., Gross, H.-M.** Leverage Temporal Consistency for Robust Semantic Video Segmentation. in: *ICML 2019 Workshop on Uncertainty and Robustness in Deep Learning, Long Beach, CA, USA*, 8 pages, 2019
 - 29) **Simon, M., Amende, K., Kraus, A., Honer, J., Saemann, T., Kaulbersch, H., Milz, St., Gross, H.-M.** Complexer YOLO: Real-Time 3D Object Detection and Tracking on Semantic Point Clouds. in: *CVPR-Workshop on Autonomous Driving, Long Beach, USA*, 10 pages, IEEE 2019
 - 30) **Stricker, R., Eisenbach, M., Sesselmann, M., Debes, K., Gross, H.-M.** Improving Visual Road Condition Assessment by Extensive Experiments on the Extended GAPs Dataset. in: *Int. Joint Conf. on Neural Networks (IJCNN), Budapest, Hungary*, paper N-20496, 8 pages, IEEE 2019
 - 31) **van der Grinten, T., Mueller, St., Westhoven, M., Wischniewski, S., Scheidig, A., Gross, H.-M.** Designing an Expressive Head For a Help Requesting Socially Assistive Robot. in: *Human-Friendly Robotics (HFR), Springer Proc. in Advanced Robotics*, vol 12. pp. 88-102, Springer 2019
 - 32) **Wengefeld, T., Mueller, St., Lewandowski, B., Gross, H.-M.** A Multi Modal People Tracker for Real Time Human Robot Interaction. in: *IEEE Int. Symp. on Robot and Human Interactive Communication (RO-MAN), New Delhi, India*, 8 pages, IEEE 2019
 - 33) **Wengefeld, T., Lewandowski, B., Seichter, D., Pfennig, L., Gross, H.-M.** Real-time Person Orientation Estimation using Colored Pointclouds. in: *Europ. Conf. on Mobile Robotics (ECMR), Prague, Czech Republic*, 7 pages, 2019
 - 34) **Backhaus, N., Rosen, P. H., Scheidig, A., Gross, H.-M., Wischniewski, S.** Somebody Help Me, Please?! Interaction Design Framework for Needy Mobile Service Robots. in: *IEEE Workshop on Advanced Robotics and its Social Impacts (ARSO)*, pp. 54-61 , IEEE 2018
 - 35) **Dahn, N., Fuchs, St., Gross, H.M.** Situation Awareness for Autonomous Agents. in: *IEEE Int. Symp. on Robot and Human Interactive Communication (RO-MAN), Nanjing, China*, pp. 666-671 , IEEE 2018
 - 36) **Jaeschke, B., Vorndran, A., Trinh, T. Q., Scheidig, A., Gross, H.-M., Sander, K., Layher, F.** Making Gait Training Mobile - A Feasibility Analysis. in: *IEEE Int. Conf. on Biomedical Robotics and Biomechatronics (Biorob), Enschede, The Netherlands*, pp. 484-490, IEEE 2018
 - 37) **Katzmann, A., Muehlberg, A., Suehling, M., Noerenberg, D., Holch, J. W., Gross, H.-M.** Tumor Encode - Deep Convolutional Autoencoder for Computed Tomography Tumor Treatment Assessment. in: *World Congress on Computational Intelligence / Int. Joint Conf. on Neural Networks*

- (IJCNN), Rio de Janeiro, Brazil, pp. 3876-3883, IEEE 2018
- 38) **Katzmann, A., Muehlberg, A., Suehling, M., Noerenberg, D., Holch, J.W., Heinemann, V., Gross, H.-M.** Predicting Lesion Growth and Patient Survival in Colorectal Cancer Patients using Deep Neural Networks. in: *Int. Conf. on Medical Imaging with Deep Learning (MIDL), Amsterdam, The Netherlands*, 12 pages, openreview.net, 2018
 - 39) **Mueller, St., Gross, H.-M.** Making a Socially Assistive Robot Companion Touch Sensitive. in: *Int. Conf. on Haptics and Touch Enabled Computer Applications (Eurohaptics), Pisa, Italy*, pp. 476-488, Springer 2018
 - 40) **Seichter, D., Eisenbach, M., Stricker, R., Gross, H.-M.** How to Improve Deep Learning based Pavement Distress Detection while Minimizing Human Effort. in: *IEEE Int. Conf. on Automation Science and Engineering (CASE), Munich*, pp. 63-68, IEEE 2018
 - 41) **Trinh, T. Q., Wengefeld, T., Mueller, St., Vorndran, A., Volkhardt, M., Scheidig, A., Gross, H.-M.** "Take a seat, please": Approaching and Recognition of Seated Persons by a Mobile Robot. in: *Int. Symposium on Robotics (ISR), Munich, Germany*, pp. 240-247, VDE Verlag 2018
 - 42) **Vorndran, A., Trinh, T. Q., Mueller, St., M., Scheidig, A., Gross, H.-M.** How to Always Keep an Eye on the User with a Mobile Robot? in: *Int. Symposium on Robotics (ISR), Munich, Germany*, pp. 219-225, VDE Verlag 2018
 - 43) **Dittmar, C., Denzler, J., Gross, H.-M.** A Feedback Estimation Approach for Therapeutic Facial Training. in: *Int. Joint Conf. on Face and Gesture Recognition (FG), Washington D.C., USA*, pp. 141-148, IEEE 2017
 - 44) **Eisenbach, M., Stricker, R., Seichter, D., Amende, K., Debes, K., Sesselmann, M., Ebersbach, D., Stoeckert, U., Gross, H.-M.** How to Get Pavement Distress Detection Ready for Deep Learning? A Systematic Approach. in: *Int. Joint Conf. on Neural Networks (IJCNN), Anchorage, USA*, pp. 2039-2047, IEEE 2017
 - 45) **Eisenbach, M., Stricker, R., Seichter, D., Vorndran, A., Wengefeld, T., Gross, H.-M.** Speeding up Deep Neural Networks on the Jetson TX1. in: *Int. WS CAPRI at Joint Conf. on Neural Networks (IJCNN), Anchorage, USA*, 12 pages, 2017
 - 46) **Gross, H.-M., Meyer, S., Scheidig, A., Eisenbach, M., Mueller, St., Trinh, T. Q., Wengefeld, Bley, A., Martin, Ch., Fricke, Ch.** Mobile Robot Companion for Walking Training of Stroke Patients in Clinical Post-stroke Rehabilitation. in: *IEEE Int. Conf. on Robotics and Automation (ICRA), Singapore*, pp. 1028-1035, IEEE 2017
Best Paper Award on Human-Robot Interaction (HRI) - Finalist
 - 47) **Lewandowski, B., Wengefeld, T., Schmiedel, Th., Gross, H.-M.** I See You Lying on the Ground - Can I Help You? Fast Fallen Person Detection in 3D with a Mobile Robot. in: *IEEE Int. Symp. on Robot and Human Interactive Communication (RO-MAN), Lisbon, Portugal*, pp. 74-80, IEEE 2017
 - 48) **Mueller, St., Trinh, T. Q., Gross, H.-M.** Local Real-Time Motion Planning Using Evolutionary Optimization. in: *Towards Autonomous Robotic Systems (TAROS), UK*, LNCS Vol. 10454, pp. 211-221, Springer 2017
 - 49) **Mueller, St., Trinh, T. Q., Gross, H.-M.** First Steps Towards Emotionally Expressive Motion Control For Wheeled Robots. in: *IEEE Int. Symp. on Robot and Human Interactive Communication (RO-MAN), Lisbon, Portugal*, pp. 1351-56, IEEE 2017
 - 50) **Schmiedel, Th., Gross, H.-M.** IRON-BAG: Fast Classification of Humans and Objects in 3D NDT-Maps using Structural Signatures. in: *IEEE Int. Symp. on Robot and Human Interactive Communication (RO-MAN), Lisbon, Portugal*, pp. 1491-1497, IEEE 2017
 - 51) **Eisenbach, M., Seichter, D., Wengefeld, T., Gross, H.-M.** Cooperative Multi-Scale Convolutional Neural Networks for Person Detection. in: *IEEE World Congress on Computational Intelligence (WCCI), Vancouver, Canada*, pp. 267-276, IEEE 2016
 - 52) **Gross, H.-M., Eisenbach, M., Scheidig, A., Trinh, T. Q., Wengefeld, T.** Contribution towards Evaluating the Practicability of Socially Assistive Robots - by Example of a Mobile Walking Coach Robot. in: *Int. Conf. on Social Robotics (ICSR), Kansas City, USA*, LNAI 9979, pp. 890-99, Springer 2016
 - 53) **Wengefeld, T., Eisenbach, M., Trinh, T. Q., Gross, H.-M.** May I be your Personal Coach? Bringing Together Person Tracking and Visual Re-identification on a Mobile Robot. in: *Int. Symposium on Robotics (ISR), Munich, Germany*, pp. 141-148, VDE Verlag 2016
 - 54) **Eisenbach, M., Kolarow, A., Vorndran, A., Niebling, J., Gross, H.-M.** Evaluation of Multi Feature Fusion at Score-Level for Appearance-based Person Re-Identification. in: *Proc. Int. Joint Conf. on Neural Networks (IJCNN), Killarney, Ireland*, pp. 469-476, IEEE 2015
 - 55) **Eisenbach, M., Vorndran, A., Sorge, S., Gross, H.-M.** User Recognition for Guiding and Following People with a Mobile Robot in a Clinical Environment. in: *IEEE/RSJ Int. Conf. on Intelligent Robots and Systems (IROS), Hamburg, Germany*, pp. 3600-3607, IEEE 2015
 - 56) **Gross, H.-M., Mueller, St., Schroeter, Ch., Volkhardt, M., Scheidig, A., Debes, K., Richter, K., Doering, N.** Robot Companion for

- Domestic Health Assistance: Implementation, Test and Case Study under Everyday Conditions in Private Apartments. in: *IEEE/RSJ Int. Conf. on Intelligent Robots and Systems (IROS), Hamburg, Germany*, pp. 5992-5999, IEEE 2015
- 57) **Mueller, St., Schroeter, Ch., Gross, H.-M.** Smart Fur Tactile Sensor for a Socially Assistive Mobile Robot. in: *Proc. Int. Conf. on Intelligent Robotics and Applications (ICIRA), UK*, Part. II, LNAI 9246, pp. 49-60, Springer 2015
- 58) **Schmiedel, Th., Einhorn, E., Gross, H.-M.** IRON: A Fast Interest Point Descriptor for Robust NDT-Map Matching and Its Application to Robot Localization. in: *IEEE/RSJ Int. Conf. on Intelligent Robots and Systems (IROS), Hamburg, Germany*, pp. 3144-3151, IEEE 2015
- 59) **Stricker, R., Mueller, St., Gross, H.-M.** Universal Usage of a Video Projector on a Mobile Guide Robot. in: *Proc. Int. Conf. on Intelligent Robotics and Applications (ICIRA), UK*, LNAI 9246, pp. 25-36, Springer 2015 - Best Paper Award - Finalist
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- 4) **Gross, H.-M., Moeller, R.** Neuroinformatik - neue Konzepte für autonom agierende Robotersysteme. In: N. Krah (Ed.) *Technik und Gesellschaft in Ambivalenz*, pp. 177-193, Verlag für Akademische Schriften 1997

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- 1) **Gross, H.-M., Scheidig, A., Vorndran, A., Tranh, T.Q., Schuetz, B., Trabert, J., Bley, A., Martin, Ch., Arenknecht, R., Mayfarth, A., Sternitzke, Ch.** Verfahren und System zur Erfassung des Bewegungsablaufs einer Person. *PCT/EP2020/050200*, 7.1.2020
- 2) **Gross, H.-M., Scheidig, A., Vorndran, A., Tranh, T.Q., Schuetz, B., Trabert, J., Bley, A., Martin, Ch., Arenknecht, R., Mayfarth, A., Sternitzke, Ch.** Serviceroboter. *DE10 2019 116 848.1*, 21.6.2019
- 3) **Gross, H.-M., Scheidig, A., Vorndran, A., Tranh, T.Q., Schuetz, B., Trabert, J., Bley, A., Martin, Ch., Arenknecht, R., Mayfarth, A.** Serviceroboter. *DE 10 2019 100 228.1*, 7.1.2019
- 4) **M. Schürer, H.-M. Gross, E. Koerner.** Verfahren zur globalen syntaktischen Bildanalyse *Patentschrift DD-WP G06K /3380373*, 22.02.1990
- 5) **K. Debes, H.-M. Gross.** Schaltungsanordnung zur strukturorientierten Bildtransformation. *Patentschrift DD-WP 252 693*, 10.09.1986
- 6) **H.-M. Gross, A. Keller, K. Debes.** Verfahren zur retinaähnlichen Bildabtastung. *Patentschrift DD-WP 252718*, 10.09.1986
- 7) **H.-M. Gross, E. Koerner, K. Debes.** Anordnung zur forminvarianten Bildsignalerzeugung mittels Rotationssensor. *Patentschrift DD-WP 229566*, 07.12.1984

Supervised Diploma, Bachelor & Master Theses

see Fig. 1

Supervised Doctorates

- 1) **Jens Keßler:** *Planungsmethoden für eine sozial akzeptable Navigation von Assistenzrobotern*, Co-reviewer: Prof. Dr. Witte (TU Ilmenau), Prof. Böhme (HTW Dresden), TU Ilmenau 2021
- 2) **Markus Eisenbach:** *Personenwiedererkennung mittels maschineller Lernverfahren für öffentliche Einsatzumgebungen*, Co-reviewer: Prof. Dr. Rigoll (TU München), Dr. Brauckmann (IDEMIA Identity & Security Germany AG), TU Ilmenau 2019
- 3) **Erik Einhorn:** *Robuste vision-basierte Roboternavigation in natürlichen Einsatzumgebungen*, Co-reviewer: Prof. Dr. Dillmann (Karlsruher Institut für Technologie), Prof. Dr. Zell (Universität Tübingen), TU Ilmenau 2018

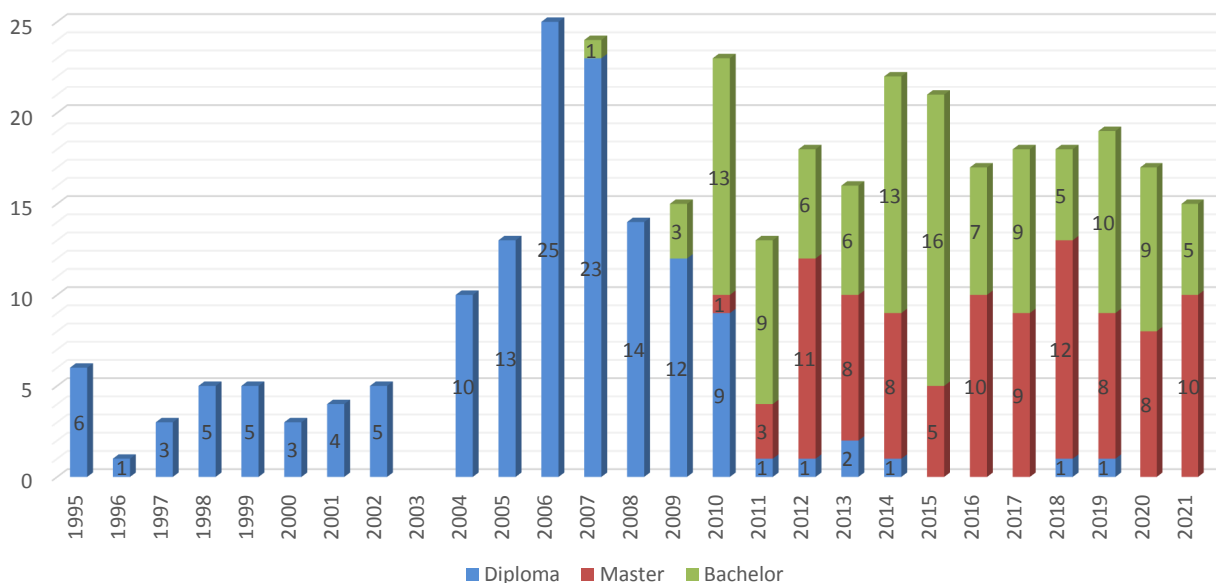


Fig. 1. Overview of supervised diploma, bachelor and master theses 1995-2021

- 4) **Michael Volkhardt:** *Ein Beitrag zur robusten Nutzerwahrnehmung auf realweltdauglichen Assistenzrobotern in häuslichen Szenarien*, Co-reviewer: Prof. Dr. Leibe (RWTH Aachen), Prof. Dr. Rigoll (TU München), TU Ilmenau 2018
- 5) **Konrad Schenk:** *Contribution to the Long Term Prediction of Motion Trajectories*, Co-reviewer: Prof. Wöhler (TU Dortmund), Prof. Böhme (HTW Dresden), TU Ilmenau 2018
- 6) **Cornelia Dittmar:** *Automatisierte Erkennung von menschlicher Mimik mittels Tiefenkameras*, Co-reviewer: Prof. Paulus (Universität Koblenz), Prof. Denzler (FSU Jena), TU Ilmenau 2016
- 7) **Christian Vollmer:** *Weiterentwicklung und Anwendung von Sparse-Coding-Verfahren für die Analyse von Armbewegungstrajektorien*, Co-reviewer: Dr. Eggert (Honda Research Institut Europe Offenbach), Prof. Dr. Giese (Universität Tübingen), TU Ilmenau 2016
- 8) **Steffen Müller:** *Realisierung nutzeradaptiven Interaktionsverhaltens für mobile Assistenzroboter*, Co-reviewer: Prof. Dr. Rigoll (TU München), Prof. Dr. Böhme (HTW Dresden), TU Ilmenau 2016
- 9) **Christoph Weinrich:** *Personenwahrnehmung für eine sozialverträgliche und nutzerzentrierte Roboternavigation in öffentlichen Einsatzumgebungen*, Co-reviewer: Prof. Dr. Zell (Uni Tübingen), Prof. Dr. Bennewitz (Uni Bonn), TU Ilmenau 2016
- 10) **Florian Steege:** *Einsatz adaptiver Lernverfahren zur Regelung industrieller Verbrennungsprozesse*, Co-reviewer: Prof. Dr. Riedmiller (Uni Freiburg), Prof. Dr. Krabbes (HTWK Leipzig), TU Ilmenau 2015
- 11) **Matthias Platho:** *Situation Assessment in Urban Intersection Scenarios*, Co-Reviewer: Dr. Eggert (Honda Research Institut Europe Offenbach), Prof. Dr. Wöhler (TU Dortmund), TU Ilmenau 2014
- 12) **Alexander Hans:** *Advancing the Applicability of Reinforcement Learning to Autonomous Control*, Co-reviewer: Prof. Dr. Ernst (University of Liège (Belgium)), Dr. Hans Georg Zimmermann (Siemens AG, CT München), TU Ilmenau 2014
- 13) **Christian Martin:** *Videobasierte Verfahren zur Schätzung des Interaktionsinteresses bei der Mensch-Roboter-Interaktion mittels Analyse durch Synthese*, Co-Reviewer: Prof. Dr. Rigoll (TU München), Prof. Dr. Böhme (HTW Dresden), TU Ilmenau 2012
- 14) **Nils Einecke:** *Stereoscopic Depth Estimation for Online Vision Systems*, Co-reviewer: Dr. Eggert (Honda Research Institut Europe Offenbach); Prof. Dr. Burschka (TU München), TU Ilmenau 2012
- 15) **Matthias Merten:** *Design of Interactive Service Robots applying methods of Systems Engineering and Decision Making*, Co-reviewer: Prof. Dr. Berns (TU Kaiserslautern), Prof. Dr. Zimmermann (TU Ilmenau), TU Ilmenau 2012
- 16) **Erik Schaffernicht:** *Lernbeiträge im Rahmen einer kognitiven Architektur für die intelligente Prozessführung*, Co-reviewer: Prof. Dr. Riedmiller (Uni Freiburg), Prof. Dr. Villmann (Hochschule Mittweida), TU Ilmenau 2012
- 17) **Manuel Günther:** *Statistical Gabor graph based techniques for the detection, recognition, classification and visualization of human faces*, Co-reviewer:

- PD. Dr. Würtz (RU Bochum), Prof. Dr. Zielke (FH Düsseldorf), TU Ilmenau 2012
- 18) **Sven Rebhan:** *Task- and Knowledge-Driven Scene Representation*, Co-reviewer: Dr. Eggert (Honda Research Institute Offenbach), Prof. Mertsching (Universität Paderborn), TU Ilmenau 2010
 - 19) **Stephan Kirstein:** *Interactive and Life-Long Learning for Identification and Categorization Tasks*, Co-reviewer: Prof. Körner (Honda Research Institute Offenbach), Prof. Riedmiller (Universität Freiburg), TU Ilmenau 2010
 - 20) **Sven Hellbach:** *Entwicklung von Methoden zur Unterscheidung und Interpretation von Bewegungsmustern in dynamischen Szenen*, Co-reviewer: Dr. Eggert (Honda Research Institute Offenbach), Prof. Giese (Universität Tübingen), TU Ilmenau 2010
 - 21) **Ben Trefflich:** *Videogestützte Überwachung der Fahreraufmerksamkeit und Adaption von Fahrerassistenzsystemen*, Co-reviewer: Prof. Färber (Universität der Bundeswehr), Prof. Augsburg (TU Ilmenau), TU Ilmenau 2010
 - 22) **David Sommer:** *Analyse des Mikroschlafs mit Methoden der Computergestützten Intelligenz*, Co-reviewer: Prof. Golz (FH Schmalkalden), Prof. Brause (Universität Frankfurt), TU Ilmenau 2009
 - 23) **Christof Schröter:** *Probabilistische Methoden für die Roboter-Navigation am Beispiel eines autonomen Shopping-Assistenten*, Co-reviewer: Prof. Siegwart (ETH Zürich), Prof. Zell (Universität Tübingen), TU Ilmenau 2009
 - 24) **Carsten Schauer:** *Modellierung primärer multi-sensorischer Mechanismen der räumlichen Wahrnehmung*, Co-reviewer: Prof. Möller (Universität Bielefeld), Prof. Mallot (Universität Tübingen), TU Ilmenau 2006
 - 25) **Torsten Wilhelm:** *Methoden der vision-basierten Nutzerwahrnehmung für eine natürliche Interaktion mit mobilen Servicerobotern*, Co-reviewer: Prof. Rigoll (TU München); Prof. Zielke (C-Vis GmbH Bochum, FH Düsseldorf), TU Ilmenau 2005
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 - 28) **Dima Surmeli:** *Erwerb und Koordination von Verhalten für visuomotorische Systeme in realen Umgebungen mittels Reinforcement Lernen*, Co-reviewer: Prof. Dörner (Universität Bamberg), Prof. Dorffner (Universität Wien), TU Ilmenau 2002
 - 29) **Volker Stephan:** *Visuomotorische Antizipation: eine handlungsorientierte Sicht auf die visuelle Wahrnehmung*, Co-reviewer: Prof. Martinetz (Medizinische Universität Lübeck), Prof. Dorffner (Universität Wien), TU Ilmenau 2001
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 - 32) **Andrea Corradini:** *DYGEST - Neural Architecture for Visual-based Dynamic Gesture Recognition*, Co-reviewer: Prof. Michaelis (TU Magdeburg), Prof. Griebbach (TU Ilmenau), TU Ilmenau 2000
 - 33) **Fred Hamker:** *Visuelle Aufmerksamkeit und lebenslanges Lernen im Wahrnehmungs-Handlungszyklus*, Co-reviewer: Prof. von der Malsburg (RU Bochum), Prof. Hartmann (Universität/GH Paderborn), TU Ilmenau 1999
 - 34) **Dietmar Heinke:** *Selbstorganisation einer zeitlichen Objektrepräsentation*, Co-reviewer: Prof. von Seelen (RU Bochum), Prof. Stiehl (Universität Hamburg), TU Ilmenau 1997
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 - 36) **Ralf Möller :** *Wahrnehmung durch Vorhersage: Eine Konzeption der handlungsorientierten Wahrnehmung*, Co-reviewer: Prof. Dorffner (Universität Wien), Dr. Mallot (MPI Tübingen), TU Ilmenau 1995
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