

Jingyi Xu

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| CONTACT INFORMATION | Email: jingyi.xu@tum.de Website: http://www.jingyixu.com |
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| RESEARCH INTERESTS | Grasping and manipulation of deformable objects <ul style="list-style-type: none">• Contact modeling• Grasp analysis, planning, and adaptation 3D perception, tactile-based object recognition |
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| EDUCATION | Technical University of Munich (TUM) Ph.D. Candidate, Chair of Media Technology Expected May 2020 Advisor: Prof. Dr.-Ing. Eckehard Steinbach Research Focus: Grasping deformable objects with compliant gripper jaws Visiting Student Researcher, UC Berkeley, AUTOLab Expected Oct. 2019 Advisor: Prof. Ken Goldberg Research Focus: Learning robust grasps for deformable objects Master of Science (M.Sc.) with High Distinction, TUM Jul. 2014 Electrical and Computer Engineering GPA: 1.2 (on a scale from 1 to 5, with 1 being the highest score) Bachelor of Science (B.Sc.), TUM Aug. 2012 Electrical and Computer Engineering |
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| RESEARCH EXPERIENCE | Visiting Student Researcher, UC Berkeley Apr. 2019 - present Advisor: Prof. Ken Goldberg. A novel quality metric to grasp 3D deformable objects. Ph.D. Candidate, TUM Nov. 2014 - present Advisor: Prof. Dr.-Ing. Eckehard Steinbach. Modeling non-planar area contacts for soft fingers with 6D limit surfaces. Master Thesis, TUM Oct. 2013 - Jul. 2014 Topic: "Order Reduction of Pseudo-Boolean Functions for QPBO" Advisors: Dipl.-Ing. Roderick de Nijs and Univ. Prof. Dr.-Ing. Martin Buss. Algorithm development for order reduction and optimization of higher-order pseudo-boolean functions. Applied for image segmentation and image de-noising. Graduate Research Assistant, TUM Oct. 2012 - Apr. 2013 Algorithm development and implementation for semantic segmentation based on randomized decision forests and bag-of-words. RoboHockey Tournament, TUM Oct. 2012 - Jan. 2013 Robot Hockey Tournament with the Pioneer 3-AT mobile platforms. Attack and defense strategy design, PID controller, obstacle avoidance. RoboSoccer Tournament, TUM Apr. 2012 - Sep. 2012 Multi-robot soccer tournament with the Pololu 3Pi robots. PID controller, defense strategy design. |
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| PUBLICATIONS | [1] J. Xu , M. Danielczuk J. Ichnowski, J. Mahler, E. Steinbach, K. Goldberg, "Minimal Work: A Grasp Quality Metric for Deformable Hollow Objects." <i>Submitted to IEEE International Conference on Robotics and Automation (ICRA)</i> , 2019. [2] J. Xu , M. Danielczuk, E. Steinbach, K. Goldberg, "Efficiently Planning Soft Non-Planar Area Contact Grasps using 6D Friction Cones." <i>Submitted to IEEE International Conference on Robotics and Automation (ICRA)</i> , 2019. [3] J. Xu , T. Aykut, D. Ma, E. Steinbach, "Non-Planar Frictional Surface Contacts: Modeling and Application to Grasping." <i>Submitted to IEEE Transactions on Robotics (TRO)</i> , 2018. [4] M. Danielczuk, J. Xu , J. Mahler, M. Matl, N. Chentanez, K. Goldberg, "REACH: Reducing False Negatives in Robot Grasp Planning with a Robust Efficient Area |
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Contact Hypothesis Model." *The International Symposium on Robotics Research (ISRR)*, 2019.

[5] T. Aykut, **J. Xu**, E. Steinbach. "Realtime 3D 360-Degree Telepresence With Deep-Learning-Based Head-Motion Prediction." *IEEE Journal on Emerging and Selected Topics in Circuits and Systems*, 2019.

[6] **J. Xu**, A. Bhardwaj, G. Sun, T. Aykut, N. Alt, M. Karimi, E. Steinbach. "Learning-Based Modular Task-Oriented Grasp Stability Assessment." *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 2018.

[7] T. Aykut, C. Burgmair, M. Karimi, **J. Xu**, E. Steinbach. "Delay Compensation for Actuated Stereoscopic 360 Degree Telepresence Systems with Probabilistic Head Motion Prediction." *IEEE Winter Conference on Applications of Computer Vision (WACV)*, 2018.

[8] T. Aykut, C. Zou, **J. Xu**, D. Van Opdenbosch, E. Steinbach. "A Delay Compensation Approach for Pan-Tilt-Unit-based Stereoscopic 360° Telepresence Systems Using Head Motion Prediction." *IEEE International Conference on Robotics and Automation (ICRA)*, 2018.

[9] **J. Xu**, N. Alt, Z. Zhang, E. Steinbach. "Grasping posture estimation for a two-finger parallel gripper with soft material jaws using a curved contact area friction model." *IEEE International Conference on Robotics and Automation (ICRA)*, 2017.

[10] N. Alt, **J. Xu**, E. Steinbach. "A dataset of thin-walled deformable objects for manipulation planning." *Int. Workshop on Grasping and Manipulation Datasets, in conjunction with IEEE International Conference on Robotics and Automation (ICRA)*, 2016.

[11] N. Alt, **J. Xu**, E. Steinbach. "Grasp planning for thin-walled deformable objects." *Int. Workshop on Robotic Hands, Grasping, and Manipulation, in conjunction with IEEE International Conference on Robotics and Automation (ICRA)*, 2015.

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| SCHOLARSHIPS | The Germany Scholarship (Deutschlandstipendium), TUM Oct. 2013 - Sep. 2014 Scholarship for talented and outstanding students. |
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| CAMPUS TALKS | Research Seminar, AUTOLab, UCB Apr. 2019 Invited by Prof. Ken Goldberg. Topic: "Grasping deformable objects with soft fingers." |
| | ICS Research Seminar, Institute for Cognitive Systems, TUM Apr. 2017 Invited by Prof. Dr. Gordon Cheng. Topic: "Grasping posture estimation for a parallel soft gripper using a curved contact area friction model." |
| | Doctoral Seminar, Chair of Media Technology, TUM Jul. 2017 Invited by Prof. Dr.-Ing. Eckehard Steinbach. Topic: "Grasping and manipulation of deformable objects." |

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| LEADERSHIP, MENTORING AND TEACHING | Technical University of Munich (TUM) Computational Haptics Laboratory (C++) Apr. 2015 - present Supervision of weekly programming tasks and term team projects. Lab Course Android Programming Oct. 2015 - present Android programming lectures . Supervision of term projects for App development. RoboSoccer Tournament Apr. 2012 - Sep. 2012 Team leader. 2nd Prize of the RoboSoccer Tournament 2012. Supervision of student projects Jan. 2015 - present Theses supervision of 11 undergraduate and graduate students. Topics include FEM simulation, recognition and grasp synthesis of deformable objects, improvement of tactile sensors. |
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| OTHER QUALIFICATIONS AND INTERESTS | Programming: Python, Matlab, C/C++, Java, ROS, OpenCV, PCL, Android, QT. Software: Linux, ANSYS, Nvidia FLEX, Mathematica, Autodesk Fusion, Git. Languages: Native Chinese, fluent written and spoken English and German. Interests: Robotics, piano, books and hiking. |
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