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## Publications

### **In-Hand Pose Estimation and Pin Inspection for Insertion of Through-Hole Components**

Hagelskjær, F. & Kraft, D., 2022, *2022 IEEE 18th International Conference on Automation Science and Engineering (CASE)*. IEEE, p. 382-389 (IEEE International Conference on Automation Science and Engineering, Vol. 2022-August).

### **Towards Flexible PCB Assembly Using Simulation-Based Optimization**

Mathiesen, S. F., Sørensen, L. C., Iversen, T. M., Hagelskjær, F. & Kraft, D., 2022, *Towards Sustainable Customization: Bridging Smart Products and Manufacturing Systems - Proceedings of the 8th Changeable, Agile, Reconfigurable and Virtual Production Conference CARV 2021 and 10th World Mass Customization and Personalization Conference MCPC 2021*. Andersen, A.-L., Andersen, R., Brunoe, T. D., Larsen, M. S. S., Nielsen, K., Napoleone, A. & Kjeldgaard, S. (eds.). Springer, p. 166-173 (Lecture Notes in Mechanical Engineering).

### **Wilson Score Kernel Density Estimation for Bernoulli Trials**

Sørensen, L. C., Mathiesen, S., Kraft, D. & Petersen, H. G., 10. Jul 2020, *Proceedings of the 17th International Conference on Informatics in Control, Automation and Robotics*. Gusikhin, O., Madani, K. & Zaytoon, J. (eds.). SCITEPRESS Digital Library, Vol. 1. p. 305-313

### **Towards robot cell matrices for agile production—SDU Robotics' assembly cell at the WRC 2018**

Schlette, C., Buch, A. G., Hagelskjær, F., Iturrate, I., Kraft, D., Kramberger, A., Lindvig, A. P., Mathiesen, S., Petersen, H. G., Rasmussen, M. H., Savarimuthu, T. R., Sloth, C., Sørensen, L. C. & Thulesen, T. N., 17. Apr 2020, In: *Advanced Robotics*. 34, 7-8, p. 422-438

### **Rapid Estimation of Optical Properties for Simulation-Based Evaluation of Pose Estimation Performance**

Iversen, T. M., Wilm, J. & Kraft, D., Nov 2019, *Proceedings of the 2019 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*. IEEE, p. 2030-2037 (IEEE International Conference on Intelligent Robots and Systems. Proceedings).

### **Increasing safety by combining multiple declarative rules in robotic perception systems**

Ingbergsson, J. T. M., Kraft, D. & Schultz, U. P., 13. Apr 2019, *Cyber Physical Systems. Design, Modeling, and Evaluation: 7th International Workshop, CyPhy 2017, Revised Selected Papers*. Chamberlain, R., Taha, W. & Törngren, M. (eds.). Springer, p. 43-60 (Lecture Notes in Computer Science, Vol. 11267).

### **Optimizing sensor placement: A mixture model framework using stable poses and sparsely precomputed pose uncertainty predictions**

Iversen, T. M. & Kraft, D., 27. Dec 2018, *Proceedings of the 2018 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*. IEEE, p. 6652-6659

### **Adapting Parameterized Motions using Iterative Learning and Online Collision Detection**

Laursen, J. S., Sørensen, L. C., Schultz, U. P., Ellekilde, L.-P. & Kraft, D., 13. Sept 2018, *Proceeding of the 2018 IEEE International Conference on Robotics and Automation*. IEEE, p. 7587-7594

### **Optimisation of Trap Design for Vibratory Bowl Feeders**

Mathiesen, S., Sørensen, L. C., Kraft, D. & Ellekilde, L.-P., 13. Sept 2018, *Proceeding of the 2018 IEEE International Conference on Robotics and Automation*. IEEE, p. 3467-3474

### **Local point pair feature histogram for accurate 3D matching**

Buch, A. G. & Kraft, D., 6. Sept 2018.

### **BOP: Benchmark for 6D Object Pose Estimation**

Hodan, T., Michel, F., Brachmann, E., Kehl, W., Buch, A. G., Kraft, D., Drost, B., Vidal, J., Ihrke, S., Zabulis, X., Sahin, C., Manhardt, F., Tombari, F., Kim, T.-K., Matas, J. & Rother, C., Sept 2018, *Computer Vision - ECCV 2018: 15th European Conference, Munich, Germany, September 8–14, 2018, Proceedings, Part III*. Ferrari, V., Hebert, M., Sminchisescu, C. & Weiss, Y. (eds.). Springer, Vol. 11207. p. 19-35 (Lecture Notes in Computer Science).

### **Bootstrapping relational affordances of object pairs using transfer**

Fichtl, S., Kraft, D., Krüger, N. & Guerin, F., Mar 2018, In: *IEEE Transactions on Cognitive and Developmental Systems*. 10, 1, p. 56-71

### **Automatic Parameter Learning for Easy Instruction of Industrial Collaborative Robots**

Sørensen, L. C., Andersen, R. S., Schou, C. & Kraft, D., Feb 2018, *IEEE International Conference on Industrial Technology*. IEEE, p. 87-92

### **Simulation-based optimization of camera placement in the context of industrial pose estimation**

Jørgensen, T. B., Iversen, T. M., Lindvig, A. P., Schlette, C., Kraft, D., Savarimuthu, T. R., Roßmann, J. & Krüger, N., Jan 2018, *Proceedings of the 13th International Joint Conference on Computer Vision, Imaging and Computer Graphics Theory and Applications*. Imai, F., Tremeau, A. & Braz, J. (eds.). SCITEPRESS Digital Library, Vol. 5. p. 524-533

### **Integrating Multi-Purpose Natural Language Understanding, Robot's Memory, and Symbolic Planning for Task Execution in Humanoid Robots**

Wächter, M., Ovchinnikova, E., Wittenbeck, V., Kaiser, P., Szedmak, S., Mustafa, W., Kraft, D., Krüger, N., Piater, J. & Asfour, T., 2018, In: *Robotics and Autonomous Systems*. 99, p. 148-165

### **Safety Computer Vision Rules for Improved Sensor Certification**

Mogensen, J. T. I., Kraft, D. & Schultz, U. P., 11. May 2017, *Proceedings of the First IEEE International Conference on Robotic Computing (IRC)*. IEEE, p. 89-92

### **Declarative Rule-based Safety for Robotic Perception Systems**

Mogensen, J. T. I., Kraft, D. & Schultz, U. P., 2017, In: *Journal of Software Engineering for Robotics*. 8, 1, p. 17-31

### **Explicit Image Quality Detection Rules for Functional Safety in Computer Vision**

Mogensen, J. T. I., Kraft, D. & Schultz, U. P., 2017, *Proceedings of the 12th International Joint Conference on Computer Vision, Imaging and Computer Graphics Theory and Applications*. Braz, J., Tremeau, A. & Imai, F. (eds.). Institute for Systems and Technologies of Information, Control and Communication, Vol. 6. p. 433-444

### **Generation of synthetic Kinect depth images based on empirical noise model**

Iversen, T. M. & Kraft, D., 2017, In: *Electronics Letters*. 53, 13, p. 856-858

### **Prediction of ICP Pose Uncertainties Using Monte Carlo Simulation with Synthetic Depth Images**

Iversen, T. M., Buch, A. G. & Kraft, D., 2017, *Proceedings of the 2017 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*. IEEE, p. 4640-4647

### **Rotational Subgroup Voting and Pose Clustering for Robust 3D Object Recognition**

Buch, A. G., Kiforenko, L. & Kraft, D., 2017, *Proceedings of the 2017 IEEE International Conference On Computer Vision*. IEEE, p. 4137-4145 9 p. (I C C V - International Conference on Computer Vision, Vol. 2017).

### **The Sliced Pineapple Grid Feature for Predicting Grasping Affordances**

Thomsen, M. T., Kraft, D. & Krüger, N., 2017, *Computer Vision, Imaging and Computer Graphics Theory and Applications - 11th International Joint Conference, VISIGRAPP 2016, Revised Selected Papers*. Braz, J., Magnenat-Thalmann, N., Richard, P., Linsen, L., Telea, A., Battiato, S. & Imai, F. (eds.). Springer, p. 418-438 (Communications in Computer and Information Science, Vol. 693).

### **A Semi-Local Surface Feature for Learning Successful Grasping Affordances**

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### **Affordance estimation for vision-based object replacement on a humanoid robot**

Mustafa, W., Wächter, M., Szedmak, S., Agostini, A., Kraft, D., Asfour, T., Piater, J., Wörgötter, F. & Krüger, N., 2016, *Proceedings of the 47th International Symposium on Robotics*. VDE-Verlag, p. 164-172

### **Emotion Recognition Through Body Language Using RGB-D Sensor**

Kiforenko, L. & Kraft, D., 2016, *Proceedings of the 11th International Joint Conference on Computer Vision, Imaging and Computer Graphics Theory and Applications*. Magnenat-Thalmann, N., Richard, P., Linsen, L., Telea, A., Battiato, S., Imai, F. & Braz, J. (eds.). SCITEPRESS Digital Library, Vol. 3. p. 398-405

### **Facilitating Robotic Subtask Reuse by a New Representation of Parametrized Solutions**

Buch, J. P., Sørensen, L. C., Kraft, D. & Petersen, H. G., 2016, *Proceedings of the 13th International Conference on Informatics in Control, Automation and Robotics*. Gusikhin, O., Peaucelle, D. & Madani, K. (eds.). SCITEPRESS Digital Library, p. 37-48

### **Industrial Assembly Cases**

Ellekilde, L.-P., Buch, J. P., Iversen, T. M., Laursen, J. S., Mathiesen, S., Sørensen, L. C., Kraft, D., Savarimuthu, T. R., Petersen, H. G., Chrysostomou, D., Hansson, M. & Schou, C., 2016, Syddansk Universitet. Mærsk Mc-Kinney Møller Institutet. 22 p. (Technical Reports - Maersk Mc-Kinney Moller Institute, University of Southern Denmark; No. 1).

### **Online Action Learning using Kernel Density Estimation for Quick Discovery of Good Parameters for Peg-in-Hole Insertion**

Sørensen, L. C., Buch, J. P., Petersen, H. G. & Kraft, D., 2016, *Proceedings of the 13th International Conference on Informatics in Control, Automation and Robotics*. Gusikhin, O., Peaucelle, D. & Madani, K. (eds.). SCITEPRESS Digital Library, p. 166-177

### **Multi-Label Object Categorization Using Histograms of Global Relations**

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### **Using surfaces and surface relations in an early cognitive vision system**

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### **Using Relational Histogram Features and Action Labelled Data to Learn Preconditions for Means-End Actions**

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### **Towards Declarative Safety Rules for Perception Specification Architectures**

Mogensen, J. T. I., Schultz, U. P. & Kraft, D., 28. Sept 2015, *Proceedings of 6th International Workshop on Domain-Specific Languages and models for Robotic systems (DSLRob-15)*. 4 p.

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### **Geometric Edge Description and Classification in Point Cloud Data with Application to 3D Object Recognition**

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### **Identifying relevant feature-action associations for grasping unmodelled objects**

Thomsen, M. T., Kraft, D. & Krüger, N., Mar 2015, In: *Paladyn. Journal of Behavioral Robotics*. 6, 1, p. 85-110

### **Real-time extraction of surface patches with associated uncertainties by means of Kinect cameras**

Olesen, S. M., Lyder, S., Kraft, D., Krüger, N. & Jessen, J. B., Mar 2015, In: *Journal of Real-Time Image Processing*. 10, 1, p. 105-118

### **Extracting Categories By Hierarchical Clustering Using Global Relational Features**

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### **Shape Dependency of ICP Pose Uncertainties in the Context of Pose Estimation Systems**

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### **Technologies for the Fast Set-Up of Automated Assembly Processes**

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### **Applying Simulation and a Domain-Specific Language for an Adaptive Action Library**

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### **Automatic Grasp Generation and Improvement for Industrial Bin-Picking**

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### **Learning Spatial Relationships From 3D Vision Using Histograms**

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### **A Survey of the Ontogeny of Tool Use: From Sensorimotor Experience to Planning**

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### **Extended 3D Line Segments from RGB-D Data for Pose Estimation**

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### **Pose Estimation using a Hierarchical 3D Representation of Contours and Surfaces**

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### **Applying a Learning Framework for Improving Success Rates in Industrial Bin Picking**

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### **Robust peg-in-hole manipulation motivated by a human tele-operating strategy**

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### **Grasp Densities for Grasp Refinement in Industrial Bin Picking**

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### **Grasp Learning by Means of Developing Sensorimotor Schemas and Generic World Knowledge**

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### **Learning Grasp Affordance Densities**

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### **Learning Visual Representations for Perception-Action Systems**

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### **Object-Action Complexes: Grounded Abstractions of Sensori-motor Processes**

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### **Development of Object and Grasping Knowledge by Robot Exploration**

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### **Refining Grasp Affordance Models by Experience**

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### **A Strategy for Grasping unknown Objects based on Co-Planarity and Colour Information**

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### **Grounded Object and Grasp Representations in a Cognitive Architecture**

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### **Learning Objects and Grasp Affordances through Autonomous Exploration**

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