


Prof. Michael Beetz

List of Publications

[J1] Jan Bandouch, Odest Chadwicke Jenkins and Michael Beetz,
A Self-Training Approach for Visual Tracking and Recognition of Complex Human Activity Patterns,

[J2] Michael Beetz, Dominik Jain, Lorenz Mösenlechner, Moritz Tenorth, Lars Kunze, Nico Blodow and Dejan Pangercic,
Cognition-Enabled Autonomous Robot Control for the Realization of Home Chore Task Intelligence,
Proceedings of the IEEE, Special Issue on Quality of Life Technology, 100(8): 2454-2471, 2012.

[J3] Freek Stulp, Andreas Fedrizzi, Lorenz Mösenlechner and Michael Beetz,
Learning and Reasoning with Action-Related Places for Robust Mobile Manipulation,

[J4] Zoltan-Csaba Marton, Florian Seidel, Ferenc Balint-Benczedi and Michael Beetz,
Ensembles of Strong Learners for Multi-cue Classification,
Pattern Recognition Letters (PRL), Special Issue on Scene Understandings and Behaviours Analysis, 2012.

[C1] Julius Kammerl AND Nico Blodow AND Radu Bogdan Rusu AND Suat Gedikli AND Michael Beetz AND Eckehard Steinbach,
Real-time Compression of Point Cloud Streams,
IEEE International Conference on Robotics and Automation (ICRA), Minnesota, USA, May 2012.

[C2] Karol Hausman, Christian Bersch, Dejan Pangercic, Sarah Osentoski, Zoltan-Csaba Marton and Michael Beetz,
Segmentation of Cluttered Scenes through Interactive Perception,

[C3] Ross Kidson, Darko Stanimirovic, Dejan Pangercic and Michael Beetz,
Elaborative Evaluation of RGB-D based Point Cloud Registration for Personal Robots,

[C4] Martin Schuster, Dominik Jain, Moritz Tenorth and Michael Beetz,
Learning Organizational Principles in Human Environments,

[C5] Thomas Rühr, Jürgen Sturm, Dejan Pangercic, Michael Beetz and Daniel Cremers,
A Generalized Framework for Opening Doors and Drawers in Kitchen Environments,


[C17] David Weikersdorfer, David Gossow and Michael Beetz, 
Depth-Adaptive Superpixels, 

[C18] Christian Bersch, Dejan Pangercic, Sarah Osentoski, Karol Hausman, Zoltan-Csaba Marton, Ryohei Ueda, Kei Okada and Michael Beetz, 
Segmentation of Textured and Textureless Objects through Interactive Perception, 

[C19] Moritz Tenorth and Michael Beetz, 
A Unified Representation for Reasoning about Robot Actions, Processes, and their Effects on Objects, 

[C20] Daniel Nyga and Michael Beetz, 
Everything Robots Always Wanted to Know about Housework (But were afraid to ask), 

[C21] Dejan Pangercic, Moritz Tenorth, Benjamin Pitzer and Michael Beetz, 
Semantic Object Maps for Robotic Housework - Representation, Acquisition and Use, 

[C22] Alexis Maldonado, Humberto Alvarez-Heredia and Michael Beetz, 
Improving robot manipulation through fingertip perception, 

[C23] Lucian Cosmin Goron, Zoltan Csaba Marton, Gheorghe Lazea and Michael Beetz, 
Segmenting Cylindrical and Box-like Objects in Cluttered 3D Scenes, 
7th German Conference on Robotics (ROBOTIK), Munich, Germany, May 2012.

[C24] Zoltan-Csaba Marton, Florian Seidel and Michael Beetz, 
Towards Modular Spatio-temporal Perception for Task-adapting Robots, 
Postgraduate Conference on Robotics and Development of Cognition (RobotDoC-PhD), a satellite event of the 22nd International Conference on Artificial Neural Networks (ICANN), Lausanne, Switzerland, 2012.

[C25] Reinhard Klapfer, Lars Kunze and Michael Beetz, 
Pouring and Mixing Liquids — Understanding the Physical Effects of Everyday Robot Manipulation Actions, 
35th German Conference on Artificial Intelligence (KI-2012), Workshop on Human Reasoning and Automated Deduction, Saarbrücken, Germany, September 24–27 2012.
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[C26] Lars Kunze, Andrei Haidu and Michael Beetz, Making Virtual Pancakes — Acquiring and Analyzing Data of Everyday Manipulation Tasks through Interactive Physics-based Simulations, Poster and Demo Track of the 35th German Conference on Artificial Intelligence (KI-2012), Saarbrücken, Germany, September 24–27 2012.


[C20] Zoltan-Csaba Marton, Dejan Pangercic and Michael Beetz,
Efficient Surface and Feature Estimation in RGBD,
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Forum, Västerås, Sweden, April 8 2011.

[J1] Michael Beetz, Freek Stulp, Piotr Esden-Tempski, Andreas Fedrizzi, Ulrich Klank, Ingo
Kresse, Alexis Maldonado and Federico Ruiz,
Generality and Legibility in Mobile Manipulation,

[J2] Wykowska, Agnieszka, Maldonado, Alexis, Beetz, Michael, Schuboe and Anna,
How Humans Optimize Their Interaction with the Environment: The Impact
of Action Context on Human Perception,

[J3] Michael Beetz, Moritz Tenorth, Dominik Jain and Jan Bandouch,
Towards Automated Models of Activities of Daily Life,

[J4] Michael Beetz, Dominik Jain, Lorenz Mösenlechner and Moritz Tenorth,
Towards Performing Everyday Manipulation Activities,

[J5] Michael Beetz, Martin Buss and Bernd Radig,
Learning from Humans – Cognition-enabled Computational Models of Every-
day Activity,
Künstliche Intelligenz, 2010.

[J6] Martin Buss and Michael Beetz,
CoTeSys – Cognition for Technical Systems,
Künstliche Intelligenz, 2010.

[J7] Moritz Tenorth, Dominik Jain and Michael Beetz,
Knowledge Representation for Cognitive Robots,

[J8] Michael Beetz and Alexandra Kirsch,
Special Issue on Cognition for Technical Systems,
Künstliche Intelligenz, 24: 2010.

[J9] M. F. Zaeh, W. Roesel, A. Bannat, T. Bautze, M. Beetz, J. Blume, K. Diepold, C. Ertelt,
Ruehr, A. Schuboe, K. Shea, I. Stork genannt Wersborg, S. Stork, W. Tekouo, F. Wallhoff
and M. Wiesbeck,
Artificial Cognition in Production Systems,
[BC1] Nicolai v. Hoyningen-Huene and Michael Beetz,
Importance Sampling as One Solution to the Data Association Problem in Multi-target Tracking,

[C1] Moritz Tenorth, Daniel Nyga and Michael Beetz,
Understanding and Executing Instructions for Everyday Manipulation Tasks from the World Wide Web,

[C2] Moritz Tenorth and Michael Beetz,
Priming Transformational Planning with Observations of Human Activities,

[C3] Dominik Jain, Andreas Barthels and Michael Beetz,
Adaptive Markov Logic Networks: Learning Statistical Relational Models with Dynamic Parameters,

[C4] Dominik Jain and Michael Beetz,
Soft Evidential Update via Markov Chain Monte Carlo Inference,

[C5] Nico Blodow, Zoltan-Csaba Marton, Dejan Pangercic and Michael Beetz,
Making Sense of 3D Data,

[C6] Zoltan-Csaba Marton, Dejan Pangercic, Nico Blodow, Jonathan Kleinehellefort and Michael Beetz,
General 3D Modelling of Novel Objects from a Single View,

[C7] Dejan Pangercic, Moritz Tenorth, Dominik Jain and Michael Beetz,
Combining Perception and Knowledge Processing for Everyday Manipulation,

[C8] Michael Beetz, Lorenz Mösenlechner and Moritz Tenorth,
CRAM – A Cognitive Robot Abstract Machine for Everyday Manipulation in Human Environments,
[C9] Lorenz Mösenlechner, Nikolaus Demmel and Michael Beetz, 
Becoming Action-aware through Reasoning about Logged Plan Execution Traces, 

[C10] Federico Ruiz-Ugalde, Gordon Cheng and Michael Beetz, 
Prediction of action outcomes using an object model, 

[C11] Alexis Maldonado, Ulrich Klank and Michael Beetz, 
Robotic grasping of unmodeled objects using time-of-flight range data and finger torque information, 

[C12] Lars Kunze, Moritz Tenorth and Michael Beetz, 
Putting People’s Common Sense into Knowledge Bases of Household Robots, 

[C13] Zoltan-Csaba Marton, Dejan Pangercic, Radu Bogdan Rusu, Andreas Holzbach and Michael Beetz, 
Hierarchical Object Geometric Categorization and Appearance Classification for Mobile Manipulation, 

[C14] Nico Blodow, Dominik Jain, Zoltan-Csaba Marton and Michael Beetz, 
Perception and Probabilistic Anchoring for Dynamic World State Logging, 

[C15] Moritz Tenorth, Lars Kunze, Dominik Jain and Michael Beetz, 
KNOWROB-MAP – Knowledge-Linked Semantic Object Maps, 

[C16] Séverin Lemaignan, Raquel Ros, Lorenz Mösenlechner, Rachid Alami and Michael Beetz, 
ORO, a knowledge management module for cognitive architectures in robotics, 

[C17] Lucian Cosmin Goron, Zoltan Csaba Marton, Gheorghe Lazea and Michael Beetz, 
Automatic Layered 3D Reconstruction of Simplified Object Models for Grasping, 
*Joint 41st International Symposium on Robotics (ISR) and 6th German Conference on Robotics (ROBOTIK)*, Munich, Germany, 2010.
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[R2] Moritz Tenorth and Michael Beetz, 

[J1] Radu Bogdan Rusu, Aravind Sundaresan, Benoit Morisset, Kris Hauser, Motilal Agrawal, Jean-Claude Latombe and Michael Beetz, 

[J2] Michael Beetz, Nicolai von Hoyningen-Huene, Bernhard Kirchlechner, Suat Gedikli, Francisco Siles, Murat Durus and Martin Lames, 

[J3] Radu Bogdan Rusu, Jan Bandouch, Franziska Meier, Irfan Essa and Michael Beetz, 

[BC1] Wykowska, Agnieszka, Maldonado, Alexis, Beetz, Michael, Schuboe and Anna, 


[C1] Freek Stulp, Erhan Oztop, Peter Pastor, Michael Beetz and Stefan Schaal, 
[C2] Freek Stulp, Andreas Fedrizzi, Franziska Zacharias, Moritz Tenorth, Jan Bandouch and Michael Beetz,
Combining Analysis, Imitation, and Experience-based Learning to Acquire a Concept of Reachability,

[C3] Ulrich Klank, Dejan Pangercic, Radu Bogdan Rusu and Michael Beetz,
Real-time CAD Model Matching for Mobile Manipulation and Grasping,

[C4] Zoltan Csaba Marton, Radu Bogdan Rusu, Dominik Jain, Ulrich Klank and Michael Beetz,
Probabilistic Categorization of Kitchen Objects in Table Settings with a Composite Sensor,

[C5] Radu Bogdan Rusu, Ioan AlexandruSucan, Brian Gerkey, Sachin Chitta, Michael Beetz and Lydia E. Kavraki,
Real-time Perception-Guided Motion Planning for a Personal Robot,

[C6] Radu Bogdan Rusu, Zoltan Csaba Marton, Nico Blodow, Andreas Holzbach and Michael Beetz,
Model-based and Learned Semantic Object Labeling in 3D Point Cloud Maps of Kitchen Environments,

[C7] Radu Bogdan Rusu, Nico Blodow, Zoltan Csaba Marton and Michael Beetz,
Close-range Scene Segmentation and Reconstruction of 3D Point Cloud Maps for Mobile Manipulation in Human Environments,

[C8] Radu Bogdan Rusu, Andreas Holzbach, Nico Blodow and Michael Beetz,
Fast Geometric Point Labeling using Conditional Random Fields,

[C9] Christoph Ertelt, Thomas Rühr, Dejan Pangercic, Kristina Shea and Michael Beetz,
Integration of Perception, Global Planning and Local Planning in the Manufacturing Domain,

[C10] Freek Stulp, Andreas Fedrizzi and Michael Beetz,
Action-Related Place-Based Mobile Manipulation,

[C11] Florian Friesdorf, Dejan Pangercic, Heiner Bubb and Michael Beetz,
Mutually Augmented Cognition,
Proceedings of the International Conference on Social Robotics (ICSR), 2009.


[C22] Dominik Jain, Lorenz Mösenlechner and Michael Beetz,
Equipping Robot Control Programs with First-Order Probabilistic Reasoning
Capabilities,

[C23] Nicolai von Hoyningen-Huene and Michael Beetz,
Rao-Blackwellized Resampling Particle Filter for Real-Time Player Tracking
in Sports,
AlpeshKumar Ranchordas and Helder Araujo(Eds.), Fourth International Conference on
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[C24] Andreas Andreakis, Nicolai von Hoyningen-Huene and Michael Beetz,
Incremental Unsupervised Time Series Analysis Using Merge Growing Neural
Gas,
José Carlos Príncipe and Risto Miikkulainen(Eds.), WSOMWSOM, Springer, Lecture No-

[C25] Nicolai von Hoyningen-Huene and Michael Beetz,
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Ninth Asian Conference on Computer Vision (ACCV), Xi’an, China, Sep. 2009.

[C26] Moritz Tenorth and Michael Beetz,
KnowRob – Knowledge Processing for Autonomous Personal Robots,

[C27] Muhammad Zeeshan Zia, Ulrich Klank and Michael Beetz,
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[C28] Lorenz Mösenlechner and Michael Beetz,
Using Physics- and Sensor-based Simulation for High-fidelity Temporal Pro-
jection of Realistic Robot Behavior,
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[C29] Jan Bandouch and Michael Beetz,
Tracking Humans Interacting with the Environment Using Efficient Hierarchi-
cal Sampling and Layered Observation Models,
IEEE Int. Workshop on Human-Computer Interaction (HCl). In conjunction with IC-

[C30] Moritz Tenorth, Jan Bandouch and Michael Beetz,
The TUM Kitchen Data Set of Everyday Manipulation Activities for Motion
Tracking and Action Recognition,
IEEE International Workshop on Tracking Humans for the Evaluation of their Motion in

[C31] Michael Beetz, Jan Bandouch, Dominik Jain and Moritz Tenorth,
Towards Automated Models of Activities of Daily Life,
First International Symposium on Quality of Life Technology – Intelligent Systems for
[C32] Andreas Leha, Dejan Pangercic, Thomas Rühr and Michael Beetz,
Optimization of Simulated Production Process Performance using Machine Learning,

[C33] Li Sun, Ulrich Klank and Michael Beetz,
EYEWATCHME - 3D Hand and object tracking for inside out activity analysis,

[C34] Zoltan Csaba Marton, Lucian Cosmin Goron, Radu Bogdan Rusu and Michael Beetz,
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[C35] Radu Bogdan Rusu, Andreas Holzbach, Gary Bradski and Michael Beetz,
Detecting and Segmenting Objects for Mobile Manipulation,
*Proceedings of IEEE Workshop on Search in 3D and Video (S3DV), held in conjunction with the 12th IEEE International Conference on Computer Vision (ICCV)*, Kyoto, Japan, September 27 2009.

[C36] Nico Blodow, Radu Bogdan Rusu, Zoltan Csaba Marton and Michael Beetz,
Partial View Modeling and Validation in 3D Laser Scans for Grasping,

[C37] Radu Bogdan Rusu, Andreas Holzbach, Rosen Diankov, Gary Bradski and Michael Beetz,
Perception for Mobile Manipulation and Grasping using Active Stereo,

[C38] Michael Beetz, Nico Blodow, Ulrich Klank, Zoltan Csaba Marton, Dejan Pangercic and Radu Bogdan Rusu,
CoP-Man – Perception for Mobile Pick-and-Place in Human Living Environments,

[C39] Jun Li, Alexis Maldonado, Michael Beetz and Anna Schuboe,
Obstacle avoidance in a pick-and-place task,

[C40] Agnieszka Wykowska, Alexis Maldonado, Michael Beetz and Anna Schuboe,
How humans optimize their interaction with the environment: The impact of action context on human perception.,

[C41] Zahid Riaz, Christoph Mayer, Matthias Wimmer, Michael Beetz and Bernd Radig,
A Model Based approach for Expression Invariant Face Recognition,
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[C42] Zahid Riaz, Christoph Mayer, Michael Beetz and Bernd Radig,
Facial Expressions Recognition from Image Sequences,

[C43] Zahid Riaz, Christoph Mayer, Michael Beetz and Bernd Radig,
Model Based Analysis of Face Images for Facial Feature Extraction,

[C44] Zahid Riaz, Michael Beetz and Bernd Radig,
Image Normalization for Face Recognition using 3D Model,

[C45] Zahid Riaz, Christoph Mayer, Michael Beetz and Bernd Radig,
3D Model for Face Recognition across Facial Expressions,

[C46] Zahid Riaz, Suat Gedikli, Michael Beetz and Bernd Radig,
A Unified Features Approach to Human Face Image Analysis and Interpretation,

[C47] Zahid Riaz, Christoph Mayer, Saquib Sarfraz, Michael Beetz and Bernd Radig,
Multi-Feature Fusion in Advanced Robotics Applications,

[R1] Moritz Tenorth, Daniel Nyga and Michael Beetz,
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[R2] Dominik Jain, Stefan Waldherr and Michael Beetz,
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[J3] Freek Stulp and Michael Beetz,
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[J4] Radu Bogdan Rusu, Brian Gerkey and Michael Beetz,
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Autonomous Mapping of Kitchen Environments and Applications,

[C2] Radu Bogdan Rusu, Aravind Sundaresan, Benoit Morisset, Motilal Agrawal, Michael Beetz and Kurt Konolige,
Realtime Extended 3D Reconstruction from Stereo for Navigation,

[C3] Radu Bogdan Rusu, Zoltan Csaba Marton, Nico Blodow and Michael Beetz,
Interpretation of Urban Scenes based on Geometric Features,

[C4] Radu Bogdan Rusu, Aravind Sundaresan, Benoit Morisset, Motilal Agrawal and Michael Beetz,
Leaving Flatland: Realtime 3D Stereo Semantic Reconstruction,

[C5] Radu Bogdan Rusu, Zoltan Csaba Marton, Nico Blodow and Michael Beetz,
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The Assistive Kitchen – A Demonstration Scenario for Cognitive Technical Systems,
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[C8] Freek Stulp and Michael Beetz,
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[C10] Jan Bandouch, Florian Engstler and Michael Beetz, Accurate Human Motion Capture Using an Ergonomics-Based Anthropometric Human Model, Proceedings of the Fifth International Conference on Articulated Motion and Deformable Objects (AMDO), 2008.


[C18] Moritz Tenorth and Michael Beetz, 
**Towards Practical and Grounded Knowledge Representation Systems for Autonomous Household Robots**, 

[C19] Dominik Jain, Lorenz Mösenlechner and Michael Beetz, 
**Equipping Robot Control Programs with First-Order Probabilistic Reasoning Capabilities**, 

[C20] Lorenz Mösenlechner, Armin Müller and Michael Beetz, 
**High Performance Execution of Everyday Pick-and-Place Tasks by Integrating Transformation Planning and Reactive Execution**, 

[C21] Zahid Riaz, Michael Beetz and Bernd Radig, 
**Shape Invariant Recognition of Segmented Human Faces using Eigenfaces**, 
*Proceedings of the 12th International Multitopic Conference, IEEE, 2008.*

[J1] Martin Buss, Michael Beetz and Dirk Wollherr, 
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[C1] Nicolai v. Hoyningen-Huene, Bernhard Kirchlechner and Michael Beetz, 
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[C2] Freek Stulp, Wolfram Koska, Alexis Maldonado and Michael Beetz, 
**Seamless Execution of Action Sequences**, 

[C3] Michael Beetz, Suat Gedikli, Jan Bandouch, Bernhard Kirchlechner, Nico von Hoyningen-Huene and Alexander Perzylo, 
**Visually Tracking Football Games Based on TV Broadcasts**, 
*Proceedings of the Twentieth International Joint Conference on Artificial Intelligence (IJCAI), 2007.*

[C4] Suat Gedikli, Jan Bandouch, Nico von Hoyningen-Huene, Bernhard Kirchlechner and Michael Beetz, 
**An Adaptive Vision System for Tracking Soccer Players from Variable Camera Settings**, 
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[C5] Matthias Kranz, Alexis Maldonado, Benedikt Hoernler, Radu Bogdan Rusu, Michael Beetz, Gerhard Rigoll and Albrecht Schmidt,
*A Knife and a Cutting Board as Implicit User Interface - Towards Context-Aware Kitchen Utilities*,

[C6] Matthias Kranz, Alexis Maldonado, Radu Bogdan Rusu, Benedikt Hoernler, Gerhard Rigoll, Michael Beetz and Albrecht Schmidt,
*Sensing Technologies and the Player-Middleware for Context-Awareness in Kitchen Environments*,

[C7] Radu Bogdan Rusu, Alexis Maldonado, Michael Beetz and Brian Gerkey,
*Extending Player/Stage/Gazebo towards Cognitive Robots Acting in Ubiquitous Sensor-equipped Environments*,

[C8] Martin Buss, Michael Beetz and Dirk Wollherr,
*CoTeSys — Cognition for Technical Systems*,

[C9] Michael Beetz, Jan Bandouch, Alexandra Kirsch, Alexis Maldonado, Armin Müller and Radu Bogdan Rusu,
*The Assistive Kitchen — A Demonstration Scenario for Cognitive Technical Systems*,

[C10] Alexandra Kirsch and Michael Beetz,
*Training on the Job — Collecting Experience with Hierarchical Hybrid Automata*,

[C11] Armin Müller, Alexandra Kirsch and Michael Beetz,
*Transformational Planning for Everyday Activity*,

[C12] Armin Müller and Michael Beetz,
*Towards a Plan Library for Household Robots*,

[C13] Michael Beetz, Martin Buss and Dirk Wollherr,
*Cognitive Technical Systems — What Is the Role of Artificial Intelligence?*,
[C14] Radu Bogdan Rusu, Nico Blodow, Zoltan-Csaba Marton, Alina Soos and Michael Beetz,
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[C15] Dominik Jain, Bernhard Kirchlechner and Michael Beetz,
Extending Markov Logic to Model Probability Distributions in Relational Domains,

[C1] Radu Bogdan Rusu, Alexis Maldonado, Michael Beetz, Matthias Kranz, Lorenz Mösenlechner, Paul Holleis and Albrecht Schmidt,
Player/Stage as Middleware for Ubiquitous Computing,

[C2] Matthias Kranz, Radu Bogdan Rusu, Alexis Maldonado, Michael Beetz and Albrecht Schmidt,
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[C3] Freek Stulp, Mark Pfüger and Michael Beetz,
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[C5] Freek Stulp, Michael Isik and Michael Beetz,
Implicit Coordination in Robotic Teams using Learned Prediction Models,

[C6] Freek Stulp and Michael Beetz,
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[C7] Armin Müller and Michael Beetz,
Designing and Implementing a Plan Library for a Simulated Household Robot,
[C8] Markus Geipel and Michael Beetz,
Learning to shoot goals, Analysing the Learning Process and the Resulting Policies,
Gerhard Lakemeyer, Elizabeth Sklar, Domenico Sorenti and Tomoichi Takahashi(Eds.),

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A Person and Context Specific Approach for Skin Color Classification,

[J1] Michael Beetz, Bernhard Kirchlechner and Martin Lames,
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[J2] Michael Beetz and Henrik Grosskreutz,
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[BC1] Michael Beetz,
Towards Comprehensive Computational Models for Plan-Based Control of Autonomous Robots,

[C1] Alexandra Kirsch and Michael Beetz,
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[J1] Robert Hanek and Michael Beetz,  
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[J2] Michael Beetz, Thorsten Schmitt, Robert Hanek, Sebastian Buck, Freek Stulp, Derik Schr"oter and Bernd Radig,  
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Evaluating Multi-Agent Robotic Systems Using Ground Truth,  

[C7] M. Beetz, F. Fischer, S. Flossmann, B. Kirchlechner, A. Unseld and C. Holzer,  
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[C8] M. Beetz, B. Kirchlechner and F. Fischer,  
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[C9] D. Schröter and M. Beetz,
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