Guilherme Maeda

Contact Information

e-mail: gjmaeda@gmail.com
https://gjmaeda.github.io/
https://scholar.google.com/citations?user=fVCyyDgAAAAJ&hl=en

Professional Summary

I am a senior robotics researcher. For over 10 years, I have developed learning-based methods for robots, with a focus on designing, implementing, and evaluating systems on physical platforms. My work bridges independent scientific research with real-world deployment, combining hands-on system development with technical leadership of engineering teams. I lead robotics projects focused on robust deployment and experimental validation, including debugging and improving complex system behavior in both collaborative and competitive human–robot settings.

Research Focus

- Learning-based control using imitation and reinforcement learning on real-world robotic systems
- Human–robot interaction in collaborative and adversarial settings
- Motion planning and trajectory optimization for (high-speed) dynamic tasks
- Experimental design and validation under real-world reliability and safety constraints

Professional Experience

Staff Research Scientist **January 2025 – Present**
Sony AI. Tokyo, Japan

- Lead development of learning-based control and trajectory generation methods for real-world robotic systems
- Contributed to the robotic table tennis project "Ace", (Nature, 2026), leading robot serve generation and system evaluation for competitive play against human opponents
- Design, implement, and deploy learning-based and optimal controllers on physical platforms, focusing on robustness and real-world performance

Senior Research Scientist **January 2022 – December 2024**
Sony AI. Tokyo, Japan

- Developed fast and safe control methods for industrial robotic systems (FANUC and Stäubli)
- Led a sub-team of 8 researchers, driving roadmap definition and end-to-end execution from ideation to deployment
- Built and evaluated learning-based control systems for dynamic tasks, with emphasis on reliability and experimental validation

Researcher **May 2019 – December 2021**
Preferred Networks, Inc. Tokyo, Japan

- Research and development in robot learning and robot control for human support tasks (e.g. grasping, teleoperation, imitation)
- Implemented and deployed proof-of-concept systems on real robotic platforms (Toyota HSR)
- Contributed to patent applications and peer-reviewed publications
- Mentored interns and proposed research directions

Research Scientist **November 2017 – April 2019**
ATR Computational Neuroscience Laboratories, Dept. of Brain Robot Interface, Kyoto, Japan

- Research in machine learning, humanoid control, and human-robot collaboration
- Advising of graduate students and internship students
- Robotics demonstrations

Research Scientist and **Team Leader** **November 2013 – October 2017**
Intelligent Autonomous Systems, Technische Universitaet Darmstadt, Darmstadt, Germany

- Research in machine learning and control methods with an emphasis on human-robot collaboration and semi-autonomous robots
- Supervised PhDs (4), Masters (2) and Bachelor (7) students
- Led IAS team contribution to the EU-funded 3rd Hand project
- Co-lecture and invited lectures on machine learning, robotics and control

Research Assistant **April 2013 – October 2013**
Australian Centre for Field Robotics, Sydney, Australia

- Model-predictive control and motion planning algorithms for autonomous driving of car-like robots

Research & Development **2007 – 2009**
IHI Corporation, Tokyo, Japan

- Mechanical design of robot end-effectors and precision roller printers
- Concept, design and evaluation of transportation systems in assembly lines

Research & Development **2002 – 2004**
Intermed Medical Equipment, Sao Paulo, Brazil

- Design of centrifugal pumps control for portable lung ventilators
- Mechanical and control design of anaesthesia equipment

Education

PhD in Field Robotics **July 2009 – November 2013**
"Learning and Reacting with Inaccurate Prediction: Applications to Autonomous Excavation"
Australian Centre for Field Robotics. The University of Sydney, Australia
Advisors: Hugh Durrant-Whyte, David Rye, Ian R. Manchester, Surya Singh
Thesis examiners: Kevin Moore (Colorado School of Mines), Peter Corke (Queensland University of Technology), Quang Ha (University of Technology Sydney)

Masters in Control Engineering **2004 – 2007**
"Ultra-precision Positioning Control using a Conventional Ball-screw Mechanism"
Tokyo Institute of Technology, Japan
Advisor: Kaiji Sato

Bachelors in Mechanical Engineering, Automation and Systems **1998 – 2003**
"Automatic Pressure Control of Lung Ventilators with Regenerative Compressor"
The University of Sao Paulo, Brazil

Honours, Awards and Research Funding

Finalist: Best Paper, **Best Student Paper**, and **Best Service Robotics Paper** **2015**
At the 2015 IEEE International Conference on Robotics and Automation (ICRA).

KUKA Innovation Award 2015 Sponsored Track **2015**
Awarded with the deployment of a KUKA LBR iiwa (approx. € 100,000) with the proposal "A Personal Robot Assistant for Home and Industry" during the competition period.

Doctoral Research Scholarship **2009–2013**
Awarded by The University of Sydney and the Rio Tinto Centre for Mining and Automation.

Outstanding Young Researcher **2006**
Awarded at the International Conference on Leading Edge Manufacturing (LEM 21).

Master's Degree Scholarship **2005–2007**
Awarded by the Japanese Ministry of Education, Culture, Sports, Science and Technology.

Invited Talks

Nagoya University **October 2017**
Department of Micro-Nano Mechanical Science and Engineering. Chaired by Prof. Jun Nakanishi.

IEEE/RSJ Int. Conference on Intelligent Robots and Systems (IROS) **September 2017**
24/09/2017. Invited speaker. Workshop: Learning for Collaborative Robotics: Enabling Flexible, Redeployable and Agile Industrial Applications. Vancouver, Canada.
24/09/2017. Invited speaker. Workshop: Human in-the-loop robotic manipulation. Vancouver, Canada.
28/09/2017. Invited speaker. Workshop: Joint Learning in Human-Robot Collaboration. Vancouver, Canada.

European Robotics Forum (ERF) **March 2017**
Invited speaker. Workshop: Teaching by Demonstration for Industrial Applications. Edinburgh, Scotland.

Queensland University of Technology (QUT) **February 2017**
Brisbane, Australia. Chaired by Prof. David Lovell.

Advanced Telecommunications Research Institute International (ATR) **February, 2017**
Kyoto, Japan. Chaired by Dr. Jun Morimoto.

Inria-Bordeaux **January 2017**
Bordeaux, France. Chaired by Dr. Pierre-Yves Oudeyer.

University of Edinburgh **May 2016**
Edinburgh, Scotland. Chaired by Prof. Barbara Webb.

SQUIRREL-3rdHand Winter school **February 2016**
Obergurgl, Austria. Chaired by Michael Zillich.

Plymouth University **November 2015**
Plymouth, England. Chaired by Prof. Angelo Cangelosi.

International Conference on Humanoid Robots (HUMANOIDS) **November 2014**
Invited speaker. Workshop: Policy Representation for Humanoid Robots. Madrid, Spain. Chaired by Neil Dantam.

Organization of Workshops

Robotics: Science and Systems (RSS) **2020**
Full-day workshop: Closing the Academia to Real-World Gap in Service Robotics. Organized with Nick Walker (University of Washington), Maru Cabrera (University of Washington), and Petar Kormushev (Imperial College London).

International Conference on Intelligent Robots and Systems (IROS) **2016**
Full-day workshop: Towards Co-Adaptive Learning Through Semi-Autonomy and Shared Control. Organized with Luka Peternel (IIT). Co-organizers: Leonel Rozo (ADVR, IIT, Italy), Serena Ivaldi (INRIA Nancy Grand-Est, France), Claudia Pérez D'Arpino (MIT, USA), Julie A. Shah (MIT, USA), Jan Babič (ABR, JSI, Slovenia), Tamim Asfour (KIT, Germany), Erhan Oztop (Ozyegin University, Turkey) and Jan Peters (TU Darmstadt, Germany).

Teaching Experience

Co-Teaching: Machine Learning 1– Statistical Approaches **2015, 2016, 2017**
TU Darmstadt. ($\sim$ 100 students).
Topics: Probability, information theory and entropy. Bayesian decision theory. Kernel methods and Gaussian Process. Linear discriminant analysis, perceptron, logistic regression.

Co-Teaching: Robot Learning Course **Fall 2015, 2016**
TU Darmstadt ($\sim$60 students).
Topics: foundations for optimal decision making, MDPs, dynamic programming

Guest Lecturer: Intelligent Multi-Agent Systems **Spring 2015**
Invited by Gerhard Neumann. TU Darmstadt. ($\sim$ 20 students)

Teaching Assistant: Introduction to Mechatronics (MTRX1701) **2010 – 2011**
The University of Sydney. Tutoring and grading. ($\sim$ 50 students)

Instructor Computer-Aided Design (CAD) Software **1999 – 2000**
The University of Sao Paulo, Brazil.
Instructor and tutor of CAD software for first-year engineering students. ($\sim$ 60 students)

Student Supervision

Doctoral

2017. Carlos Celemin. *Human Corrective Advice in the Policy Search Loop*. The University of Chile and Delft University of Technology. External visiting student.

2014-2018. Okan Koc. *Learning Robot Control for Aggressive Striking and Hitting Movements*. Max Planck Institute for Intelligent Systems, Germany. Co-supervised with Prof. Jan Peters.

2014-present. Marco Ewerton. *Bi-directional Human-Robot Learning for Sport Science Applications*. TU Darmstadt, Germany. Co-supervised with Prof. Jan Peters.

2013-2017. Rudolf Lioutikov. *Automatic Movement Segmentation and Skill Library Generation*. TU Darmstadt, Germany. Co-supervised with Prof. Jan Peters.

Masters

2019. Joni Väätäinen. *Automatic Extraction of Task Semantics From Observations*. PFN, Japan.

Internship student from Waseda University (as main advisor and co-advised with Hironori Yoshida).

2019. Zhangwei Hong. *Off-policy Reinforcement Learning*. PFN, Japan. Internship student (Acting as co-advisor and advised by Prabhat Nagarajan).

2019. Alaa Maghrabi. *Combining Multiple Robot Skills via SLAM for Robotic Basketball*. ATR, Japan. Visiting student from EPFL (advisor: Auke Ijspeert).

2018. Christina Aigner. *Learning from Visual Observations of Human Interaction: 3D Skeleton Reconstruction via Kinect and OpenPose*. ATR, Japan. Visiting student from TU Munich (advisor: Gordon Cheng).

2015–2016. Dorothea Koert. *Combining Human Demonstrations and Motion Planning for Movement Primitive Optimization*. TU Darmstadt, Germany. Co-supervised with Prof. Jan Peters.

2013–2014. Marco Ewerton. *Modeling Human-Robot Interaction with Probabilistic Movement Representations*. TU Darmstadt, Germany. 2014. Co-supervised with Prof. Jan Peters and Prof. Gerhard Neumman.

Bachelors

2017. Claudia Lolkes Thesis topic: Incremental Imitation Learning with Estimation of Uncertainty. TU Darmstadt, Germany.

2017. Idris Nematpur Thesis topic: Jointly Learning from Demonstrations and Human Preferences On Non-Linear Systems. TU Darmstadt, Germany.

2015–2016. Daniel Alte Thesis topic: Using a low-cost BCI device for intelligent control of a robotic arm. TU Darmstadt, Germany.

2015 May-July. Aayush Maloo. Advanced Project: Predictive Human-Robot Interaction for Assembly Tasks. TU Darmstadt, Germany. 2015. Visiting student from Indian Institute of Technology Madras, India under DAAD scholarship.

2014–2015. Dorothea Koert. Advanced Project: Inverse Kinematics for Optimal Human-robot Collaboration. TU Darmstadt, Germany.

2014–2015. Markus Sigg and Fabian Faller. Advanced Project: Sequencing of DMPs for Task and Motion Planning. TU Darmstadt, Germany. Co-supervised with Rudolf Lioutikov.

Academic Service

Program Committee, Area Chair and Associate Editor

Area Chair: International Conference on Robot Learning (CoRL); 2018, 2019, 2021
Associate Editor.: International Conference on Robotics and Automation (ICRA); 2018
Associate Editor.: IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS); 2014, 2015, 2016, 2017, 2018
Program Committee: International Symposium on Experimental Robotics (ISER); 2016

Reviewer of Journal Articles and Peer-Reviewed Conference Articles

IEEE Robotics and Automation Letters (RA-L). 2017, 2018, 2019, 2020, 2021, 2022
IEEE International Conference on Robotics and Automation (ICRA). 2012, 2014, 2015, 2016, 2017, 2018, 2020, 2022

IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS). 2010, 2011, 2012, 2014, 2015, 2019, 2020, 2021, 2022
International Journal of Robotics Research (IJRR). 2017, 2018, 2019, 2020
IEEE International Conference on Robot and Human Interactive Communication (RO-MAN). 2020
IEEE Transactions on Robotics (TRO). 2015, 2017, 2018, 2019
Autonomous Robots (AURO). 2014, 2017, 2018, 2019
International Journal of Social Robotics (IJSR). 2018
IEEE Transactions on Automation Science and Engineering. 2013
Advanced Robotics. 2017
Automation in Construction. 2020
Neural Information Processing Systems (NIPS). 2014
International Joint Conference on Artificial Intelligence (IJCAI). 2016
Robotics: Science and Systems (RSS). 2015, 2016
International Symposium on Robotics Research (ISRR). 2015
International Symposium on Experimental Robotics (ISER). 2016
IEEE/RAS International Conference on Humanoid Robots (HUMANOIDS). 2016, 2017
IEEE/ASME International Conference on Advanced Intelligent Mechatronics (AIM). 2013
International Conference on Human-Agent Interaction (HAI). 2016
PLoS ONE scientific journal. 2017

Outreach

July 2018. Laboratory tour at the BRI (ATR): Half-day tour involving presentations and robot demonstrations for 20 visiting Masters students from the University of Ljubljana, Slovenia.

June 2017. FB20 Summer Fest (TU Darmstadt): open tour celebrating the new laboratory inauguration with robot demonstrations for the general public.

August 2016. Kinderuni Darmstadt (TU Darmstadt): organized interactive sessions using the robot platforms for elementary school students.

September 2015. Kinderuni Darmstadt (TU Darmstadt): organized interactive sessions using the robot platforms for elementary school students.

April 2015. (TU Darmstadt). Organization of demonstrations for German media.

March 2015. (TU Darmstadt). KID Science Radioclub: organized interactive sessions, lab tours, and live demonstrations using the robot platforms.

Publications

Journal Articles

[1] Dürr, P.; El Gheche, M.; **Maeda, G.**; Mukai, N.; Takahashi, N.; Heusser, S.; Sahloul, H.; Saraiji, Y.; Adodin, P.; Bi, Y.; Blakeman, S.; et al. (2026). "Outplaying Elite Table Tennis Players With an Autonomous Robot". Nature. vol. 652, no 8111, pp. 886–891.

[2] **Maeda, G.**; Fukaya, N.; Maeda, S. (2022) "F1 Hand: A Versatile Fixed-Finger Gripper for Delicate Teleoperation and Autonomous Grasping". IEEE Robotics and Automation Letters (RA-L). vol 7, no. 3, pp. 6734–6741.

[3] **Maeda, G.**; Koc, O.; Morimoto, J. (2020) "Phase Portraits as Movement Primitives for Fast Humanoid Robot Control". *Neural Networks*. vol. 129, p. 109–122.

[4] Lioutikov, R.; **Maeda, G.**; Veiga, F.; Kersting, K.; Peters, J. (2020) "Learning Attribute Grammars for Movement Primitive Sequencing". *The International Journal of Robotics Research (IJRR)*. vol. 39, no. 1, pp. 21—38.

[5] Ewerton, M.; Arenz, O.; **Maeda, G.**; Koert, D.; Kolev, Z.; Takahashi, M.; Peters, J. (2019). "Learning Trajectory Distributions for Assisted Teleoperation and Path Planning", *Frontiers*. vol. 6.

[6] Celemin, C.; **Maeda, G.**; Ruiz-del-Solar, J.; Peters, J.; Kober, J. (2019). "Reinforcement Learning of Motor Skills using Policy Search and Human Corrective Advice", *International Journal of Robotics Research (IJRR)*. vol. 38, no. 14, pp. 1560–1580.

[7] Koc, O.; **Maeda, G.**; Peters, J. (2019). "Optimizing the Execution of Dynamic Robot Movements with Learning Control". *IEEE Transactions on Robotics (TRO)*. vol. 35 no. 4. pp. 909–924.

[8] Ewerton, M.; Rother, D; Weimar, J.; Kollegger, G.; Wiemeyer, J.; Peters, J.; **Maeda, G.**. (2018). "Assisting Movement Training and Execution with Visual and Haptic Feedback", *Frontiers in Neurorobotics*, vol. 12, pp. 24.

[9] Koc, O.; **Maeda, G.**; Peters, J. (2018). "Online optimal trajectory generation for robot table tennis", *Robotics and Autonomous Systems (RAS)*, vol. 105, pp.121-137.

[10] **Maeda, G.**; Ewerton, M; Neumann, G.; Lioutikov, R.; Peters, J. (2017). "Phase Estimation for Fast Action Recognition and Trajectory Generation in Human-Robot Collaboration", *International Journal of Robotics Research (IJRR)*, vol.36, no 13-14, pp. 1579–1594.

[11] Lioutikov, R.; Neumann, G.; **Maeda, G.**; Peters, J. (2017). "Learning Movement Primitive Libraries through Probabilistic Segmentation", *International Journal of Robotics Research (IJRR)*, vol.36, no 8, pp. 879–894.

[12] **Maeda, G.**; Ewerton, M; Koert, D.; Peters, J. (2016). "Acquiring and Generalizing the Embodiment Mapping from Human Observations to Robot Skills", *IEEE Robotics and Automation Letters (RA-L)*, vol. 1, no 2, pp. 784–791.

[13] **Maeda, G.**; Neumann, G.; Ewerton, M; Lioutikov, R.; Kroemer, O.; Peters, J. (2016). "Probabilistic Movement Primitives for the Recognition and Coordination of Multiple Human-Robot Collaborative Tasks", *Autonomous Robots (AURO)*, vol. 41, no. 3, pp. 593–612.

[14] **Maeda, G.**; Manchester, I.; Rye, D. (2015). "Combined ILC and disturbance observer for the rejection of near-repetitive disturbances, with application to excavation", *IEEE Transactions on Control Systems Technology*, vol. 23, no. 5, pp. 1754–1769.

[15] Sato, K.; **Maeda, G.** (2009). "A practical control method for precision motion – Improvement of NCTF control method for continuous motion control", *Precision Engineering*, vol. 33, no. 2, pp. 175–186.

[16] **Maeda, G.**; Sato, K. (2008). "Practical control method for ultra-precision positioning using a ballscrew mechanism", *Precision Engineering*, vol. 32, no. 4, pp. 309–318.

[17] Sato, K.; **Maeda, G.** (2008). "Practical ultraprecision positioning of a ball screw mechanism", *International Journal of Precision Engineering and Manufacturing*, vol. 9, no. 2, pp. 44–49.

[18] **Maeda, G.**; Sato, K.; Hashizume, H.; Shinshi, T. (2006). "Control of an XY nano–positioning table for a compact nano-machine tool", *JSME International Journal Series C*, vol. 49, no. 1, pp. 21–27.

Book Chapter

[1] Lioutikov, R.; Kroemer, O.; Peters, J.; **Maeda, G.** (2016). "Learning Manipulation by Sequencing Motor Primitives with a Two-Armed Robot", *Advances in Intelligent Systems and Computing. Proceedings of the 13th International Conference on Intelligent Autonomous Systems (IAS)*, pp. 1601–1611.

[2] **Maeda, G.**; Rye, D.; Singh, S. (2014). "Iterative autonomous excavation", In *Field and Service Robotics, Series: Springer Tracts in Advanced Robotics*, pp. 369–382.

Peer-Reviewed Conference Articles

[1] Fukaya, N.; Ummadisingu, A.; Takahashi, K.; **Maeda, G.**; Maeda, S. (2023) "Two-fingered hand with gear-type synchronization mechanism with magnet for improved small and offset objects grasping: F2 hand". Proceedings of the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS). pp. 4525-–4532.

[2] Fukaya, N.; Ummadisingu, A.; **Maeda, G.**; Maeda, S. (2022) "F3 Hand: A Versatile Robot Hand Inspired by Human Thumb and Index Fingers". Proceedings of the IEEE International Conference on Robot and Human Interactive Communication (RO-MAN). pp. 87–103.

[3] **Maeda, G.** (2022) "Blending Primitive Policies in Shared Control for Assisted Teleoperation" . *Proceedings of the IEEE International Conference on Robotics and Automation (ICRA)*. pp 9332–9338.

[4] Hong, ZH.; Nagarajan, P.; and **Maeda, G.** (2021). "Periodic Intra-Ensemble Knowledge Distillation for Reinforcement Learning". *Joint European Conference on Machine Learning and Knowledge Discovery in Databases (ECML PKDD)*. pp. 87–103.

[5] **Maeda, G.**; Väätäinen, J.; Yoshida, H. (2020). "Visual Task Progress Estimation with Appearance Invariant Embeddings for Robot Control and Planning". *Proceedings of the IEEE/RSJ Conference on Intelligent Robots and Systems (IROS)*. pp. 7941–7948.

[6] Ewerton, M.; **Maeda, G.**; Koert, D.; Kolev, Z.; Takahashi, M.; Peters, J. (2019). "Reinforcement learning of trajectory distributions: Applications in assisted teleoperation and motion planning". *Proceedings of the IEEE/RSJ Conference on Intelligent Robots and Systems (IROS)*. pp 4294–4300.

[7] **Maeda, G.**; Koc, O; Morimoto, J. (2018). "Reinforcement Learning of Phase Oscillators for Fast Adaptation to Moving Targets", *Proceedings of Machine Learning Research (PMLR): Conference on Robot Learning (CoRL)*. pp. 630–640.

[8] Lioutikov, R; **Maeda, G.**; Veiga, F.; Kersting, K.; Peters. J. (2018). "Inducing Probabilistic Context-Free Grammars for the Sequencing of Robot Movement Primitives", *Proceedings of the IEEE International Conference on Robotics and Automation (ICRA)*. pp 5651–5658.

[9] Koert, D; **Maeda, G.**; Neumann, G.; Peters. J. (2018). "Learning Coupled Forward-Inverse Models with Combined Prediction Errors", *Proceedings of the IEEE International Conference on Robotics and Automation (ICRA)*. pp. 2433–2439.

[10] **Maeda, G.**; Ewerton, M.; Osa, T; Busch, B.; Peters, J. (2017). "Active Incremental Learning of Robot Movement Primitives", *Proceedings of Machine Learning Research (PMLR): Conference on Robot Learning (CoRL)*, vol. 78, pp. 37–46.

[11] Busch, B.; **Maeda, G.**; Mollard, Y.; Demangeat, M.; Lopes, M. (2017). "Postural Optimization for an Ergonomic Human-Robot Interaction", *Proceedings of the IEEE/RSJ Conference on Intelligent Robots and Systems (IROS)*. pp 2778–2785.

[12] **Maeda, G.**; Maloo, A.; Ewerton, M; Lioutikov, R; Peters, J. (2016). "Anticipative Interaction Primitives for Human-Robot Collaboration", *AAAI Fall Symposium Series. Shared Autonomy in Research and Practice*, Arlington, VA, USA.

[13] Koc, O.; **Maeda, G.**; Peters, J. (2016). "A New Trajectory Generation Framework in Robotic Table Tennis", *Proceedings of the IEEE/RSJ Conference on Intelligent Robots and Systems (IROS)*, pp. 3750–3756.

[14] Ewerton, M; **Maeda, G.**; Neumann, G.; Kisner, V.; Kollegger, G.; Wiemeyer, J.; Peters. J. (2016). "Movement Primitives with Multiple Phase Parameters", *Proceedings of the IEEE International Conference on Robotics and Automation (ICRA)*, pp. 201–206.

[15] Koc, O.; **Maeda, G.**; Neumann, G.; Peters, J. (2015). "Optimizing Robot Striking Movement Primitives with Iterative Learning Control", *Proceedings of the International Conference on Humanoid Robots (HUMANOIDS)*, pp. 80–87.

[16] Lioutikov, R.; Neumann, G.; **Maeda, G.**; Peters, J. (2015). "Probabilistic Segmentation Applied to an Assembly Task", *Proceedings of the International Conference on Humanoid Robots (HUMANOIDS)*, pp. 533–540

[17] **Maeda, G.**; Neumann, G.; Ewerton, M.; Lioutikov, R.; Peters, J. (2015). "A Probabilistic Framework for Semi-Autonomous Robots Based on Interaction Primitives with Phase Estimation", *International Symposium of Robotics Research (ISRR)*

[18] Ewerton, M.; **Maeda, G.**; Peters, J.; Neumann, G. (2015). "Learning Motor Skills from Partially Observed Movements Executed at Different Speeds", *Proceedings of the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), pp. 456–463*

[19] Ewerton, M.; Neumann, G.; Lioutikov, R.; Ben Amor, H.; Peters, J.; **Maeda, G.** (2015). "Learning Multiple Collaborative Tasks with a Mixture of Interaction Primitives", *Proceedings of the IEEE International Conference on Robotics and Automation (ICRA)*, pp. 1535–1542.

[20] **Maeda, G.**; Ewerton, M.; Lioutikov, R.; Ben Amor, H.; Peters, J.; Neumann, G. (2014). "Learning Interaction for Collaborative Tasks with Probabilistic Movement Primitives", *Proceedings of the International Conference on Humanoid Robots (HUMANOIDS)*, pp. 527–534

[21] **Maeda, G.**; Rye, D. (2012). "Learning disturbances in autonomous excavation", in *Proceedings of the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, pp. 2599–2605.

[22] **Maeda, G.**; Rye, D.; Singh, S. (2012). "Iterative autonomous excavation", in *The 8th International Conference on Field and Service Robotics (FSR)*.

[23] **Maeda, G.**; Singh, S.; Rye, D. (2011). "Improving operational space control of heavy manipulators via open-loop compensation", in *Proceedings of the IEEE/RSJ International Conferencen on Intelligent Robots and Systems (IROS)*, pp. 725–731.

[24] **Maeda, G.**; Singh, S.; Durrant-Whyte, H. (2011). "A tuned approach to feedback motion planning with RRT's under model uncertainty", in *Proceedings of the IEEE International Conference on Robotics and Automation (ICRA)*, pp. 2288–2294.

[25] **Maeda, G.**; Singh, S.; Durrant-Whyte, H. (2010). "Feedback motion planning approach for nonlinear control using gain scheduled RRT's", in *Proceedings of the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, pp. 119–126.

[26] Sato, K.; **Maeda, G.** (2007). "Simple and practical control method for ultra–precision positioning: Application to a ballscrew mechanism", in *Proc. of ASPE Annual Meeting*, pp. 179–182.

Workshop and Poster Presentations

[1] Zhangwei H, Nagarajan P, **Maeda G**. "Swarm-inspired Reinforcement Learning via Collaborative Inter-agent Knowledge Distillation". *NeurIPS 2019 Deep reinforcement Learning Workshop*. 2019.

[2] **Maeda, G.**; Morimoto, J. (2018). "Acquisition and Coordination of Motor Skills from Human Observations", *Workshop on Artificial Intelligence and Brain Science*. Okinawa Institute of Science and Technology.

[3] Celemin, C.; **Maeda, G.**; Kober, J.; Ruiz-del-Solar, J. (2017). "Human Corrective Advice in the Policy Search Loop", *Workshop: Human-in-the-loop robotic manipulation: on the influence of the human role (IROS)*.

[4] Ewerton, M.; **Maeda, G.**; Rother, D.; Weimar, J.; Lotter, L.; Kollegger, G.; Wiemeyer, J.; Peters, J. (2017). "Assisting the practice of motor skills by humans with a probability distribution over trajectories", *Workshop: Human-in-the-loop robotic manipulation: on the influence of the human role (IROS)*.

[5] Ewerton, M.; Kollegger, G.; **Maeda, G.**; Wiemeyer, J.; Peters, J. (2017). "Iterative Feedback-basierte Korrekturstrategien", *Workshop: beim Bewegungslernen von Mensch-Roboter-Dyaden, DVS Sportmotorik 2017*.

[6] **Maeda, G.**; Maloo, A.; Ewerton, M.; Lioutikov, R.; Peters, J. (2016). "Proactive Human-Robot Collaboration with Interaction Primitives", International Workshop on Human-Friendly Robotics (HFR), Genoa, Italy.

Supervised Theses

[1] Maghrabi, A. (2019). "A Mobile Humanoid Basketball Player: Mixing Primitive Skills via SLAM", Master Thesis, Supervised with Morimoto, J; (ATR) and Ijspeert, A (EPFL).

[2] Koc, O. (2018). "Optimal Trajectory Generation and Learning Control for Robot Table Tennis", PhD Thesis, TU Darmstadt. As co-supervisor, with Jan Peters as main supervisor.

[3] Lioutikov, R. (2018). "Parsing Motion and Composing Behavior for Semi-Autonomous Manipulation", PhD Thesis, TU Darmstadt. As co-supervisor, with Jan Peters as main supervisor.

[4] Lolkes, C. (2017). "Incremental Imitation Learning with Estimation of Uncertainty", Bachelor Thesis, TU Darmstadt.

[5] Koert, D. (2016). "Combining Human Demonstrations and Motion Planning for Movement Primitive Optimization", Master Thesis, TU Darmstadt.

[6] Alte, D. (2016). "Control of a robotic arm using a low-cost BCI", Bachelor Thesis, TU Darmstadt.

[7] Koert, D. (2015). "Inverse Kinematics for Optimal Human-Robot Collaboration", Honors Thesis, TU Darmstadt.

[8] Ewerton, M. (2014). "Modeling Human-Robot Interaction with Probabilistic Movement Representations", Master Thesis, TU Darmstadt.

Patents

[1] Suzuki, S.; **Maeda, G.** "Offset printing method and apparatus" 2012, US Patent 13/265,653.

[2] Suzuki, S.; **Maeda, G.** "Inking method and apparatus thereof" 2011, US Patent 13/061,585.