

Dr.-Ing. José de Gea Fernández

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Short Version

José de Gea Fernández holds a PhD in Robotics (2011) from the University of Bremen, Germany. Currently, he is Senior Researcher and the Head of the Team "Robot Control" at the Robotics Innovation Center (RIC) of DFKI. He has co-authored over 40 scientific publications and has been involved and acted as project leader of several German national (BMBF, DFG, BMWi, DLR) and European projects (EU, ESA) in diverse areas within his research in robotic (mobile) manipulation and collaborative robotics.

Long Version

José de Gea Fernández, born in 1976, received his M.Sc. in Electronics Engineering (2002) from the Technical University of Catalunya (UPC), Spain and his PhD in Robotics (2011) from the University of Bremen, Germany. Between 2003 and 2009 he was a Researcher at the Robotics Group of the University of Bremen. Since 2009 he is working at the Robotics Innovation Center (RIC) of DFKI (German Research Center for Artificial Intelligence) in Bremen. There, from 2011 to 2013 he acted as Deputy Head of the Department for "Mobility and Manipulation". Currently, he is Senior Researcher and the Head of the Team "Robot Control". He has co-authored over 40 scientific publications and has been involved in different German national (BMBF, DFG, BMWi, DLR) and European projects (EU, ESA) in several areas within his research in robotic manipulation. He led the DFKI team in the German project SemProm, which specified the software / hardware characteristics and designed the control strategies for the humanoid robot AILA. He acted as project leader of the DFKI contributions in the EU Project Robofoot and led the four-year project BesMan (Behaviors for Mobile Manipulation), funded by BMWi (German Federal Ministry of Economics and Technology) and DLR (German Space Agency). His main research area is on mobile manipulation, basically interested on control concepts to perform complex manipulation actions in unstructured and dynamically changing environments. He is also active in the area of safe human-robot collaboration, currently leading the European project FourByThree in which DFKI RIC develops new series-elastic actuators to create safer industrial robot manipulators. Moreover, he led the cooperation project iMRK with Volkswagen in which a novel safe and intuitive dual-arm robotic system was developed for human-robot collaboration in production scenarios. Currently, he leads the DFKI RIC contributions in the project HyBr-iT (funded by German Federal Ministry of Education and Research - BMBF) in the area of human-robot collaboration which includes important industrial participation.

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1. General Information

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2. Academic Education and Degrees

Feb 2011 PhD in Robotics (Dr.-Ing.). University of Bremen, Germany

1998 – 2001 MSc Electronics Engineering. Technical University of Catalunya (UPC),
Barcelona, Spain

1995 – 1998 BSc Industrial Electronics Engineering. Technical University of Catalunya (UPC),
Barcelona, Spain

1990 – 1995 Technician in Industrial Electronics (5-year degree), Barcelona, Spain

3. Occupational Career since Graduation

2016 – Team Leader "Robot Control", DFKI Robotics Innovation Center, Bremen, Germany

2013 – 2015 Co-Team Leader "Intelligent Kinematics", DFKI Robotics Innovation Center, Bremen,
Germany

2011 – 2013 Deputy Head of Department "Mobility and Manipulation", DFKI Robotics Innovation
Center, Bremen, Germany

2011 – Senior Researcher, DFKI Robotics Innovation Center, Bremen, Germany

2009 – 2011 Researcher, DFKI Robotics Innovation Center, Bremen, Germany

2003 - 2009 Research Assistant (WiMi), Robotics Group of the University of Bremen, Germany

2002 - 2003 Hardware / Software Engineer, LADEL S.A., Barcelona, Spain

1999 - 2001 Hardware / Software Engineer, ECOTECNIA S.C.C.L., Barcelona, Spain

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4. Additional Information

- *Committees:*
 - Reviewer for IROS'13, IROS'15, ECMR'13, IFAC 2008, DFG Research Grants (Individual Proposals), DAAD Study Scholarships, RAS Journal, ICRA 2018 and ICRA 2017 Associate Editor
 - Co-organizer IROS 2015 Workshop on "Safety for Human-Robot Interaction in Industrial Settings"
 - Member of the final selection committee of the "La Caixa" grants (the most prestigious scholarships in Spain) for postgraduate studies (Master and PhD) in Europe.
 - Barcelona (22 April 2013) and Madrid (24-25 April 2013).
- *Membership of Societies and Groups:*
 - IEEE Member
 - Member of "IEEE-RAS Technical Committee on Mobile Manipulation"
 - Collaborator of the Research Group "Innovation and Entrepreneurship" at Technical University of Mataró-TecnoCampus (UPC), Barcelona, Spain
 - Collaborator Master Studies "Industria 4.0" at Universitat Oberta Catalunya (UOC), Barcelona, Spain
 - Founding member of the "Society of Spanish Researchers in Germany" (CERFA)
 - Director of the Bremen-Niedersachsen Chapter (2012-2014)
 - National Vice-President (2014-2015)
 - Member of the Executive Board and vice-director of the Bremen-Niedersachsen Chapter (2015-present)
- *Awards:*
 - Scholarship: "Experimental Cognitive Robotics", series of conferences for young researchers organized by the European Science Foundation (ESF) and the Japan Society for the Promotion of Science (JSPS). Twenty-five European students and twenty-five Japanese students were selected to assist to the workshop with all costs covered.
 - Location: Kanagawa, Japan. Dates: 09/03/2008 - 15/03/2008

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5. Main Publications

- [1] J. de Gea Fernández, D. Mronga, M. Günther, T. Knobloch, M. Wirkus, M. Schröer, M. Trampler, S. Stiene, E. Kirchner, V. Bargsten, T. Bänziger, J. Teiwes, T. Krüger, F. Kirchner. „*Multimodal Sensor-Based Whole-Body Control for Human-Robot Collaboration in Industrial Settings*”. In Robotics and Autonomous Systems, Elsevier, volume 94, pages 102-119, Aug/2017
- [2] J. de Gea Fernández, D. Mronga, M. Günther, M. Wirkus, M. Schröer, S. Stiene, E. Kirchner, V. Bargsten, T. Bänziger, J. Teiwes, T. Krüger, F. Kirchner. „*iMRK: Demonstrator for Intelligent and Intuitive Human--Robot Collaboration in Industrial Manufacturing*”. In KI - Künstliche Intelligenz, German Journal on Artificial Intelligence - Organ des Fachbereiches "Künstliche Intelligenz" der Gesellschaft für Informatik e.V., Springer, volume , pages 1-5, Feb/2017.
- [3] J. de Gea Fernández, E. Allouis, K. Seweryn, F. Kirchner, and Y. Gao. Chapter "*Manipulation and Control*" in Book "Contemporary Planetary Robotics: An Approach Toward Autonomous Systems", First Edition. Edited by Yang Gao, Wiley-VCH Verlag GmbH & Co. KGaA, ISBN: 978-3527413256, 08/2016
- [4] V. Bargsten, J. de Gea Fernández, Y. Kassahun. "*Experimental Robot Inverse Dynamics Identification Using Classical and Machine Learning Techniques*". In IEEE International Symposium on Robotics, (ISR), 21.6.-22.6.2016, München, 2016.
- [5] E. A. Kirchner, J. de Gea Fernández, P. Kampmann, M. Schröer, J. H. Metzen, F. Kirchner. Chapter „*Intuitive Interaction with Robots -Technical Approaches and Challenges*”. In Book "Formal Modeling and Verification of Cyber Physical Systems", Springer Verlag GmbH Heidelberg, pages 224-248, Sep/2015. ISBN: 978-3-658-09993-0.
- [6] J. de Gea Fernández, D. Mronga, M. Wirkus, V. Bargsten, B. Asadi, F. Kirchner. „*Towards Describing and Deploying Whole-Body Generic Manipulation Behaviours*”. In 2015 Space Robotics Symposium, 29.10.-30.10.2015, Glasgow, IET, University of Strathclyde, 2015.
- [7] F. Kirchner, J. de Gea Fernández, S. Joyeux, J. Schwendner. Chapter „*Space robotics: towards an architecture for autonomous mobile manipulation*” in Book "Computational Intelligence in the Aerospace Sciences", American Institute of Aeronautics and Astronautics (AIAA), Editors: Massimiliano Vasile, Victor M. Becerra, chapter IX, pages 295-324, ISBN: 978-1-62410-260-8, 2014.
- [8] J. H. Metzen, A. Fabisch, L. Senger, J. de Gea Fernández, E. A. Kirchner. „*Towards Learning of Generic Skills for Robotic Manipulation*”. In KI -Künstliche Intelligenz, German Journal on Artificial Intelligence -Organ des Fachbereiches "Künstliche Intelligenz" der Gesellschaft für Informatik e.V., Springer, volume 28, number 1, pages 15-20, Mar/2014.
- [9] A. Kröner, J. Hauptert, J. de Gea Fernández, R. Steffen, C. Kleegrewe, M. Schneider. Chapter „*Supporting Interaction with Digital Product Memories*”. In Book "SemProM -Foundations of Semantic Product Memories for the Internet of Things", Springer, pages 223-242, May/2013. ISBN: 978-3-642-37376-3.
- [10] J. de Gea Fernández and F. Kirchner. „*Predictive compliance for interaction control of robot manipulators*". In IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS'11), pages 4134–4140, 2011.
- [11] J. Lemberg, J. de Gea Fernández, M. Eich, D. Mronga, P. Kampmann, A. Vogt, A. Aggarwal, Y. Shi, and F. Kirchner. „*AILA - design of an autonomous mobile dual-arm robot*". In IEEE International Conference on Robotics and Automation (ICRA'11), pages 5147–5153, Shanghai, China, May 2011.
- [12] Y. Kassahun, J. de Gea Fernández, M. Edgington, J.H. Metzen, F. Kirchner. "*Accelerating Neuroevolutionary Methods Using a Kalman Filter*". In Proceedings of the 10th Genetic and Evolutionary Computation Conference, (GECCO-2008), 12.7.-16.7.2008, Atlanta, Georgia, ACM, pages 1397-1404, 2008.
- [13] Y. Kassahun, M. Edgington, J. de Gea Fernández, F. Kirchner. "*Exploiting Sensorimotor Coordination for Learning to Recognize Objects*". In Twentieth International Joint Conference On Artificial Intelligence, (IJCAI-07), 06.1.-12.1.2007, Hyderabad, pages 883-888, 2007.