

## CV

Prof. Dr. **Jochen J. Steil**  
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**Position** Professor of Robotics, Head of Institute

### Career

since 09/16 full professor at Technische Universität Braunschweig  
since 02/15 Coordinator H2020 CogIMon: Cognitive Compliant Interaction in Motion  
since 03/15 visiting Professor in Computer Science, Brookes University, Oxford, UK  
04/07 - 09/16 Managing Director Research Institute for Cognition & Robotics – CoR-Lab, Bielefeld  
09/13 - 12/13 temporary full Professor of Computer Science, Brookes University, Oxford UK  
03/10 - 02/14 Coordinator FP7-IP AMARSi: Adaptive Modular Architectures for Rich Motor Skills  
05/08 - 09/16 Professor of Neuroinformatics at Faculty of Technology, Bielefeld University  
11/07 - 05/08 Managing Director of DFG Cluster for Cognitive Interaction Technology, CITEC  
03/06 - 07/06 Principal Scientist at Honda Research Institute Europe, Offenbach  
since 06/02 Akademischer Rat (promoted to Oberrat 06/05, to Akad. Direktor 01/08) at Bielefeld University, Neuroinformatics Group, Faculty of Technology  
09/96 - 06/02 Researcher at Bielefeld University  
09/95 - 09/96 DAAD Scholarship at Electrotechnical University, St. Petersburg, Russia  
10/93 - 09/95 Researcher at Bielefeld University

### Education

July 2006 Habilitation “Stability, Learning, and Recurrency: from Neural Networks to Robot Architectures”, *venia legendi* in Neuroinformatics, Bielefeld University  
June 1999 Dr. rer. nat., Faculty of Technology, Bielefeld University with dissertation on “Input-Output Stability of Recurrent Neural Networks”, graded “summa cum laude”  
1987 - 1993 Diploma study program “Mathematics (2cnd: Slawistics)”, Bielefeld University

### Research interests

cognitive and humanoid robotics, assistive systems, developmental and autonomous motor learning, visual online learning, neural recurrent networks, nonlinear dynamics, future of work, digital society

### EU-H2020/FP7 project coordinator

H2020 644272 CogIMon: Cognitive Compliant Interaction in Motion ), [www.cogimon-project.eu](http://www.cogimon-project.eu)  
(7 partners from 4 countries, 02/2015-01/2019, 4 years, 7 Mill EUR funding)  
FP7-ICT IP no. 248311 AMARSi: Adaptive Modular Architectures for Rich Motor Skills  
(10 partners from 6 countries, since 03/2010, 4 years, 7 Mill EUR funding), [www.amarsi-project.eu](http://www.amarsi-project.eu)  
FP7-ICT IP ECHORD, MoFTaG (Model free trajectory generation), 11/2011-04/2013  
FP7-IRSES, CODEFOR, German-Japanese staff exchange program, 01/2014-12/2018  
FP7-ECHORD++: CoHRoS - Cooperate programming for highly redundant robot systems, with Carl Cloos Schweisstechnik GmbH, 01/2015-06/2016

### Participation in large scale research projects

Project leader in NRW Fortschrittsskolleg „Gestaltung flexibler Arbeitswelten“ (2014-2018),  
Coordinator for Human-Machine Interaction in BMBF leading edge cluster: Intelligent Technical Systems (regional industry-academia innovation cluster, funding 40 Mio EUR, 2012-2017),  
scientific board of DFG Excellence Center in Cognitive Interaction Technology – CITEC (2008-2016), project leader in DFG special research units „Alignment in Communication“, „Situating Artificial Communicators“, project leader in DFG Graduate Programs 231 “Structure Formation”, 518 “Strategies and Optimization of Behavior”, 256 “Task Oriented Communication“

## **Selected funded industrial collaboration projects**

07/2012 - 09/2016 “Flexibles Montagekonzept durch autonome mechatronische Fertigungs-komponenten”, BMBF funded project with HARTING Technology Group

07/2012 - 03/2016 “Force Skill Learning”, R&D project with Honda Research Institute GmbH

07/2010 - 10/2013 “Interaktive Bedienungshilfe in der ZSVA”, R&D project with Miele Professional

03/2008 - 02/2011 “Neural learning of flexible full body motion”, R&D project with Honda Research Institute GmbH

## **Patents**

EP 1 801 731 „Adaptive scene dependent filters in online learning environments“, co-inventor

EP 2 224 303 „Task Space Selection for Robot Imitation“, co-inventor

EP 10153641.5 „Robot control with bootstrapping inverse kinematics“, co-inventor

DE 10201310042 „Verfahren zur Bestückung und zum Ausräumen einer Spülmaschine“, co-inventor

## **Selected activities, talks, workshops**

**currently associate editor of:** Frontiers in Humanoid Robotics, IEEE Trans. Neural Networks & Learning Systems, IEEE Trans. Cognitive and Developmental Systems

**guest-editor, session or workshop organizer:** Cognitive Processing 2010, Neurocomputing 2004/05  
PC member of >40 conferences, sessions at ESANN, IROS, ICRA, IEEE Humanoids, EU-ICT

**ad-hoc reviewer:** for IEEE: Neural Networks, Cognitive and Developmental Systems, Systems Man and Cybernetics A and B, AMD Circuits Systems I+II; Neural Computation, Neural Networks, Neurocomputing, Neural Processing Letters, Int. J. Systems Science, Int. J. Neural Systems, Robotics & Autonomous Systems, Int. J. Robotics Research, Autonomous Robots, J. Adv. Robotic Systems

**selected talks:** Human Friendly Robots (HFR 2016, keynote), CBIC 2011 (keynote), NCWP 2010 (keynote), ProRisc 2006 (keynote), Padua, Univ.; TU Munich; TU Berlin; Univ. Groningen, NL; Birmingham University, UK; Santa Lucia Foundation, Rome; EPFL, Lausanne; Italian Institute of Technology (IIT); Riken Institute, ATR, Osaka Univ., all Japan; Indiana Univ., Bloomington, US; Edinburgh Uni., GB; Univ. Gent; Univ. Southern California; Oxford Brookes University;

**fair exhibitions:** Hannover Messe 2009-16, Forum Maschinenbau 2009-2014, Automatica 2010, 2012

**teutolab-robotik:** workshop program for school students, [www.teutolab-robotik.de](http://www.teutolab-robotik.de)

**BMBF Zukunftsforum 2017:** lead expert supporting citizen science, <http://www.zukunft-verstehen.de/>

**BMBF Plattform Lernende Systeme:** member of AG Arbeit, Mensch-Maschine Interaktion

## **Selected Publications (of more than 175 peer-reviewed)**

**A user study on personalized stiffness control and task specificity in physical Human-Robot Interaction,** Gopinathan & J.J. Steil, Frontiers in Robotics and AI – Humanoid Robotics, 2017

**Hybrid Analytical and Data-driven Modeling for Feed-forward Robot Control.** F.Reinhart & Z. Shareef and J.J. Steil, Sensors 17(2), p. 311, 2017

**Robots in the digitalized workplace.** J.J. Steil & G. Maier. In: The Wiley Blackwell Handbook of the Psychology of the Internet at Work, Hertel G, et al. (Eds), pp. 403-433, 2017

**Learning Robot Motions with Stable Dynamical Systems under Diffeomorphic Transformations.** K. Neumann & J.J. Steil, Robotics and Autonomous Systems, 70, pp 1-15, 2015

**Efficient exploratory learning of inverse kinematics on a bionic elephant trunk.**

M. Rolf & J.J. Steil, IEEE Trans. Neural Networks and Learning Systems, 25(6), pp. 1147-1160, 2014

**A User Study on Kinesthetic Teaching of Redundant Robots in Task and Configuration Space.**

S. Wrede, C. Emmerich, R. Grünberg, A. Nordmann, A. Swadzba, and J.J. Steil, Journal of Human-Robot Interaction, vol. 2, Special Issue: HRI System Studies, pp. 56-81, 2013

**Interactive Imitation Learning of Object Movement Skills.**

Mühlig, M., J.J. Steil, and M. Gienger, Autonomous Robots, vol. 32(2), pp. 97 –114, 2012

**Goal Babbling permits direct Learning of Inverse Kinematics,**

M. Rolf, J.J. Steil, M. Gienger, IEEE Trans. Autonomous Mental Development 2(3), 216 -229, 2010

**Where to Look Next? Combining Static and Dynamic Proto-objects in a TVA-based Model of Visual Attention,** M. Wischniewski, A. Belardinelli, W. X. Schneider, J.J. Steil,

Cognitive Computation, vol 2(4), pp. 326 – 343, 2010

**Situated Robot Learning for Multi-modal Instruction and Imitation of Grasping.**

J.J. Steil, F. Röthling, R. Haschke, H. Ritter, Robotics & Autonomous Systems, pp. 129-141, 2004