

CV

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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, learning control, assistive systems, autonomous motor learning, neural networks and machine learning, small data applications, future of work, digital society

EU-H2020/FP7 project coordinator

H2020 644272 CogIMon: Cognitive Compliant Interaction in Motion), 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
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

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 recent (since 2013) publications (of more than 175 peer-reviewed)

Plug, Plan and Produce as Enabler for easy Workcell Setup and Collaborative Robot Programming in Smart Factories. Wojtynek M, Steil JJ, Wrede S. In Press KI - Künstliche Intelligenz. (Special Issue: Smart Production)

Goal-Related Feedback Guides Motor Exploration and Redundancy Resolution in Human Motor Skill Acquisition. Rhode M, Narioka K, Stein L, Steil JJ, Ernst M. PLOS Comp. Biology. 15(3):1-27, 2019

Roboterlernen ohne Grenzen ? Lernende Roboter und ethische Fragen. J.J. Steil. In: Christiane Woopen, Marc Jannes [Hrsg.] Roboter in der Gesellschaft. Technische Möglichkeiten und menschliche Verantwortung. pp. 15-33, 2019

Maschinelles Lernen in technischen Systemen. Reinhart F, Neumann K, Aswolinskiy W, Steil JJ, Hammer B. In: Steigerung der Intelligenz mechatronischer Systeme. pp.73-118, 2018

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