

## Curriculum Vitae Prof. Dr. rer. nat. Jörg P. Müller

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### Education

- 1985-1991 Diploma study in Computer Science, Universität Kaiserslautern, Germany  
Degree: Diplom-Informatiker
- 1996 Doctoral degree (Dr. rer. nat.), Universität des Saarlandes, Fakultät für Informatik  
Ph.D. thesis: An architecture for dynamically interacting agents

### Appointments

- 1991–1996 Research assistant, Deutsches Forschungszentrum für Künstliche Intelligenz GmbH, multiagent systems group (Prof.Dr. Jörg Siekmann)
- 1996–1998 Senior Research Scientist, Mitsubishi Electric Digital Library Group, London, UK;  
1997: Founding member of Internet Spin-Off Zuno Ltd.
- 1998–1999 Senior Software Architect, Wiley Interscience, John Wiley & Sons, London, UK.
- 1999–2006 Principal Research Scientist, Siemens AG, Corporate Technology, Information & Communications.  
Since 2003 Head of Competence Field “Agent and Peer-to-Peer Computing”.
- Since 03/2005 Full professor (W3) „Wirtschaftsinformatik“, Technische Universität Clausthal.  
Head of research group „Mobile and Enterprise Computing“.  
Since 2008: Head of Department of Informatics  
Since 2015: Speaker of Focused Research Area “Open Cyberphysical Systems and Simulation”

### Contributions to the scientific community

#### *Editorial work*

Editorial board: Autonomous Agents and Multiagent Systems (JAAMAS, Springer), Int’l Journal of Agent-Oriented Software Engineering (IJAOSSE, Inderscience)

Edited special issues in Knowledge Engineering Review, Applied Artificial Intelligence, Multiagent and Grid Systems, and Electronic Markets

Numerous SPC and PC memberships including IJCAI, AAAI, AAMAS, ECAI, EUMAS

#### *Steering committee (SC) memberships (selected)*

International Conference on Engineering Multiagent Systems (EMAS)

IFAAMAS (-2009), chair of Autonomous Agents conference steering committee (-2005)

European COST Action TU1102, Towards Autonomic Road Transport Support Systems (ARTS): Co-Lead of Working Group Architectures, Methods and Models for ARTS

#### *Scientific evaluator appointments*

External PhD examiner / supervisor at RMIT Melbourne, U Southampton, U Utrecht, U Augsburg, U Marburg, U Oldenburg, U des Saarlandes, U Hannover, U Braunschweig

Project / proposal reviewer for European Commission (FP6 IST, FP7 ICT, H2020 IEC FTI), Nederlandse Organisatie voor Wetenschappelijk Onderzoek (NWO), Bayerische Forschungsförderung, Fonds Wetenschappelijk Onderzoek - Vlaanderen (FWO)

### *Organization of scientific conferences and workshops (selected)*

General Chair of German Conf. on Multi-Agent System Technologies (MATES), 2015, 2014; 7th Intl. Conf. on Autonomous Agents and Multi-agent Systems (AAMAS), 2008; 2nd International Conf. on Autonomous Agents (AA), 1999; 4<sup>th</sup> Intl. Workshop on Engineering Multiagent Systems (EMAS), Singapore, 2016

Program Co-Chair of Demonstrations Track @ IJCAI 2019; German Conf. on MATES 2007, 2003; 10th Intl. Conference on Practical Applications of Agents and Multiagent Systems (PAAMS 2012); 2nd and 3rd Intl. Conf. on Interoperability for Enterprise Software and Applications (I-ESA 2006, 07); Intl. Workshop on Agent-Oriented Software Engineering (AOSE 2012, 2011, 2003-05), International Symposium "From Agent Theory to Agent Implementation (1998-2010)

### **Scholarships and awards**

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| 2015 | Runner-up best paper award of MATES'2015 and MATES'2013 Conference with the Papers <i>An agent-based voting architecture for traffic applications</i> by Sophie Dennisen and Jörg P. Müller, and <i>Similarity-Based Resource Retrieval in Multi-Agent Systems by Using Locality-Sensitive Hash Functions</i> by Malte Aschermann and Jörg P. Müller |
| 2014 | Finalist and runner-up (2 <sup>nd</sup> out of 30 contestants) in the Kuka Innovation award 2014 with demonstrator " <i>Self-organized Transportation of Work Pieces in Industrial Environments</i> " (joint work with Bernardo Wagner, LU Hannover, and Lars Wolf, TU Braunschweig)   |
| 2006 | Best Paper Award of eChallenges 2006 Conference, Barcelona, Spain for the paper <i>Using On-ion Routing to Secure Peer-to-Peer Supported Business Collaboration</i>  |
| 1994 | Best Paper Award of 2 <sup>nd</sup> International Conference on Cooperative Information Systems, Toronto, Canada, for the paper <i>An Architecture for Dynamically Interacting Agents</i>  |

### **Research interests**

Modelling and simulation of socio-technical systems, multiagent systems, decentralized intelligent systems, collective decision-making, applications in sustainable mobility, logistics, digital product engineering

### **List of ten relevant publications (all in publication outlets with scientific quality assurance)**

Kraus, S.; Azaria, A.; Fiosina, J.; Greve, M.; Hazon N.; Kolbe, L.; Lembcke T.-B; Müller J.P.; Schleibaum, S.; Vollrath, M.(2019). AI for Explaining Decisions in Multi-Agent Environments, accepted for The 34th AAAI Conference on Artificial Intelligence, New York, USA

Schöbel, A.; Pätzold, J., Müller, JP (2019). The trickle-in effect: Modeling passenger behavior in delay management. In:Proc. of Symposium on Algorithmic Approaches for Transportation Modelling, Optimization, and Systems (ATMOS 2019). Dagstuhl Open Access Series in Informatics (OASICS), Munich, DE (September 2019), (to appear).

Sebe, S., Kraus, P., Müller, JP, Westphal, S. (2019). Cross-provider platoons for sameday delivery. In: Proceedings of the 5th International Conference on Vehicle Technology and Intelligent Transport Systems, VEHITS 2019, Heraklion, Crete, Greece, May 3-5, 2019. pp. 106-116

Aschermann, M.; Kraus, P.; Müller, J. P. (2017). LightJason: A BDI Framework inspired by Jason. In Multi-Agent Systems and Agreement Technologies: 14th Europ. Conf., EUMAS 2016, and 4rd Int. Conf., AT 2016, Valencia, Spain, (58-66). Springer International Publishing.

Ahlbrecht, T.; Dix, J.; Fiekas, N.; Köster, M.; Kraus, P.; Müller, J. P. (2016). An architecture for scalable simulation of systems of cognitive agents. International Journal of Agent-Oriented Software Engineering (IJAOSE), 5(2-3), p. 232-265.

Fiosins, M.; Friedrich, B.; Görmer, J.; Mattfeld, D.; Müller, J. P. (2016). A Multiagent Approach to Modeling Autonomic Road Transport Support Systems. In T.L. McCluskey et al., Autonomic Road Transport Support Systems (p. 67--85). Basel, CH, Springer International Publishing.

Dennisen, S. & Müller, J. P. (2016). Iterative committee elections for collective decision-making in a ride-sharing application. Proc. of the 9th International Workshop on Agents in Traffic and Transport (ATT 2016), CEUR, 1-8.

Fiosina, J.; Fiosins, M.; Müller, J. P. (2013). Mining the Traffic Cloud: Data Analysis and Optimization Strategies for Cloud-Based Cooperative Mobility Management. In J. Casillas, F. J. Martínez-López, R. Vicari, F. de la Prieta, eds., Management Intelligent Systems, volume 220 of Advances in Intelligent Systems and Computing, p. 25-32. Springer Berlin Heidelberg.

Fiosins, M.; Fiosina, J.; Müller, J.P; Görmer, J. (2011). Agent-Based Integrated Decision Making for Autonomous Vehicles in Urban Traffic. Demazeau, Y.; Pechoucek, M., Corchado, J. and Pérez, J. (eds.): Advances on Practical Applications of Agents and Multiagent Systems. Volume 88 of Advances in Intelligent and Soft Computing, p. 173-178. Springer-Verlag.

Bauer, B.; Müller, J.P.; Odell, J. (2001). Agent UML: A Formalism for Specifying Multiagent Software Systems. International Journal of Software Engineering and Knowledge Engineering (IJSEKE) 11(3), 207-230.

Müller, J. P. (1996). The Design of Autonomous Agents – A Layered Approach. Volume 1177 of Lecture Notes in Artificial Intelligence 1177. Springer.

### **Supervised PhD theses (first supervisor)**

#### **Current:**

Aschermann, M. Multi-agent policy-based modeling and simulation of cooperative traffic management strategies.

Dennisen, S. Models and methods for collective decision-making in cooperative traffic.

Johora, F. Micro-simulation of mixed traffic with cognitive and hybrid models

Kraus P. Scalable multi-agent based traffic simulation.

Mukbil, A. A hybrid approach towards railway station simulation

Müller, O. Distributed collaboration processes and platforms for eAssessment.

Sebe, S. Platoon formation and operation with autonomous vehicles owned by different logistics providers

Schleibaum, S. Explainable traffic management decisions

**Completed:** 10 since 2008.

### **Funded research projects during the last five years**

04/2014- 03/2023	SocialCars: Kooperatives (De-)zentrales Verkehrsmanagement. Funded by: DFG (GRK 1931-1/2). Role: Vice speaker, Co-PI; Cooperation partner(s): B. Friedrich, M. Vollrath, D. Mattfeld TU Braunschweig), M. Fidler, M. Sester (LU Hannover)
01/2020- 12/2022	“Zukunftslabor Mobilität”, Research Field Service-Driven Mobility. Funded by: State of Niedersachsen. Role: Co-PI. Coop. partners: 12 co-PIs
03/2019- 03/2020	Explainable AI Methods for Human-Centric Ridesharing. Funded by: Volkswagenstiftung, Planning Grant. Role: Project Coordinator, PI.
06/2013- 09/2020	“eCompetence and Utilities for Learners and Teachers” (eCULT). Funded by: BMBF. Role: Co-PI. Coop. partners: 10 Universities and 2 other institutions in Lower Saxony
Since 01/2013	CONNECT: Collaboration models and methods in cross-brand Product Data Management. Funded by: Volkswagen AG. Role: PI.
06/2016- 05/2019	ASIMOV: Simulation-based analysis of passenger induced train delays. Funded by: State of Niedersachsen. Role: Co-PI. Cooperation partner: A. Schöbel (U Göttingen).
06/2013- 05/2016	DeSim: Decentralized Architecture and Concepts for Simulating Systems of Systems Funded by: State of Niedersachsen, Role: Co-PI; Cooperation partner(s): J.Dix (TU Clausthal)

- 01/2015-  
12/2015 OSoAS: Multiagent-based methods and platforms for modeling, simulation, and engineering of open systems of (autonomous) systems. Funded by: DFG (Grant to Support the Initiation of International Collaboration). Role: PI. Cooperation partners: M. Wini-koff, S. Cranefield, T. Savarimuthu (U of Otago, NZL), L. Padgham (RMIT Melbourne).
- 11/2011-  
10/2015 COST Action TU1102 „Towards Autonomic Road Transport Support Systems”. Funded by: European Union (COST). Role: German Delegate, Working Group Co-Lead. Coop. partner(s): see [http://www.cost.eu/domains\\_actions/tud/Actions/TU1102](http://www.cost.eu/domains_actions/tud/Actions/TU1102)