Curriculum Vitae

Name:	Prof. dr. Catholijn M. Jonker (born 1967)
Present position:	Head of Interactive Intelligence group, Fac. EEMCS, TU Delft
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Education

Year	*Institution*	*Degree & supervision*	*Field of study*
1994	Utrecht University	PhD Computer Science Prof.dr. D. van Dalen Prof. dr. J. van Leeuwen	Constraints and Negations in Logic Programming
1990	Utrecht University	MSc Computer Science	Parallel & Distributed Systems, Logic

Work experience

2006 – present	Full professor Interactive Intelligence, Faculty of Electrical Engineering, Mathematics and Computer Science, Delft University of Technology
2016	Visiting professor ETH Zurich, on a sabbatical from TU Delft (6 months)
2014 – 2015	Interim Department Head of the Department of Design Engineering at the Faculty of Industrial Design Engineering, TU Delft. Aim to help the department through/after a reorganisation.
2013 – 2015	Chair of the Dutch Network of Women professors (LNVH)
2011 – 2014	Research Consultant, Almende B.V. Research Institute
2004 – 2006	Full professor Artificial Intelligence / Cognitive Science, Nijmegen Institute for Cognition and Information (now Donders Institute), Radboud University Nijmegen
2005 – 2006	Chair of De Jonge Akademie van de KNAW
2004	Associate Professor & group leader of the Agent Systems Research Group, Faculty of Sciences, Vrije Universiteit Amsterdam
2000 – 2001	Artificial Intelligence Consultant, American Management Systems, Europe
1995 – 2003	Assistant Professor of the Agent Systems Research Group, Faculty of Sciences, Vrije Universiteit Amsterdam, group leader since 2000
1994 – 1995	Postdoc Theoretical Computer Science and Logic, Institut für Informatik und angewandte Mathematik, Universität Bern
1993	Research Assistant Theoretical Computer Science and Logic, Institut für Informatik und angewandte Mathematik, Universität Bern
1990 – 1994	PhD student, Department of Computer Science and department of Philosophy, Utrecht University

Awards and Honours

2007 – 2013	VICI winner, "Onderhandelen ondersteund", NWO-STW, http://www.nwo.nl/nwohome.nsf/pages/NWOA_4YJDQ3_Eng
2005 – 2010	Member of De Jonge Akademie, KNAW (Royal Netherlands Academy of Arts and Sciences). Chairperson 2005 – 2007. By nomination only.
2005 –	Member of the Koninklijke Hollandsche Maatschappij der Wetenschappen (Royal Holland Society of Sciences and Humanities), by nomination only
2013 –	Member of the Academia Europaea (www.acadeuro.org), by nomination only
2015 –	Fellow EurAI (used to be ECCAI, through BNVKI-AIABN) – by nomination only

Research interests

My mission is to create synergy between humans and technology. To this purpose I study and model forms of natural intelligent reasoning and interaction, I develop models of new forms of intelligent reasoning and interaction, and I apply these models in case studies and prototypical systems in multiple contexts, such as healthcare, well-being, entertainment, safety and security.

Society shows an increasing need for intelligent systems to support humans in complex multi-actor tasks, such as decision making, support of elderly and patients, or emotional and social interaction. In the future humans and intelligent systems (also called intelligent agents) will form ad hoc coalitions and by co-evolution both humans and intelligent agents will improve their effectiveness. In order for such cooperation to work, intelligent agents need to have situated awareness and need to work seamlessly with and for humans. Seen from the human perspective, agents furthermore need to be able to explain their purpose, way of working, and limits of their capabilities.

My contribution is modelling, analysis, and simulation of behaviour of individuals. In particular I focus on human reasoning capabilities and those concepts that are on the border between the human being as an individual and the human being as a social being, such as negotiation, national culture, trust, theory of mind, organisation/team formation, and the concept of shared mental models.

I am one of the founders of the DESIRE design method and software environment for the DEsign and Specification of Interacting REasoning components, with which I designed and implemented many agent-based systems. Furthermore, I am one of the founders of the LeadsTo and Temporal Trace languages and their associated simulation environment.

As part of my research on automated negotiation and on negotiation support systems I instigated the design and development of the GENIUS environment for testing automated negotiating agents in negotiation domains of varying complexity. GENIUS is increasingly used by top research groups on automated negotiation, and is the vehicle of international competitions in this research field. Our negotiation strategies and opponent profiling techniques are consistently in the top of that competition.

Currently I am combining different aspects of my research into a negotiation support tool, called the Pocket Negotiator. In comparison to existing negotiation support tools the Pocket Negotiator stands out because of its application of new forms of preference and value elicitation, the use affective computing to train negotiators, the use of the top negotiation strategies found in the automated negotiation competition to suggest possible bids to the user and the use of graphical and opponent profiling tools to give the user insight in the progress of the negotiation.

Boards

- President of the board of the Dutch Network of Women Professors (http://www.lnvh.nl) from 2013 till 2016, and a member of that board from 2008 till 2013.
- President of De Jonge Akademie (DJA), 2005-2006.
- Delft Women in Science (board member) from 2006 till 2013.
- Benelux Artificial Intelligence Association (board member), 20016-2006.
- EURAMAS (board member), a European association for Agent and Multi-Agent Systems, organizing workshops and summer schools http://www.euramas.org.
- Schuurman Schimmel van Outeren Stichting, board member since 2010The foundation is a privately-run organisation that offers financial support to less well-off students, to enable them to complete their studies in The Netherlands.

Reviewing and committees

I was a member of the NWO (national funding agency of the Netherlands) initiated review board of STW (applied science funding agency).

I review for the leading conferences and journals in my field. I repeatedly review and chair reviewing of grants for funding bodies in the Netherlands (NWO veni/vici) and internationally. In different roles I regularly contribute to AAMAS, which is the major conference in my field; general chair (2016), special track chair (2015), progamme chair (2013) and senior programme committee member. I have organised my share of medium sized conferences and workshops. I have been a member of severeal KNAW committees, of severeal juries (sometimes as chair) of several national and international science prizes, general grants, and individual grants. I am regularly asked for evaluation committees of colleagues.

Publications

H-index = 37 (Apr 2016), http://scholar.google.com/citations?user=khyi_HIAAAAJ&hl=en. Peer-reviewed journal papers: > 80. Peer-reviewed conference and workshop papers: > 200. Book contributions: 18. Other publications: > 20. A list of key publications can be found at the end of this document. For a complete list of my publications, see http://ii.tudelft.nl/~catholijn.

Grant funding

Personal funding has come from NWO/STW for my VICI project on negotiation (k€ 1250). Major funding I helped acquire a Co-PI has come from the EU (ITEA, FP7), Agentschap NL (directly or through intermediate funding bodies) and FES (aardgasbaten), totalling over € 10 Million. Occassionaly we accept, PhD students on a grant from the Chinese Research council. From companies I obtained k€ 340.

Collaborations

My research is collaborative, as is evident from my publications. I have collaborations within Europe, the Middle and Far East and the USA (including MIT) on negotiation, human-agent-robot teamwork, and coaching and training using virtual reality. Prof. Sarit Kraus (Bar Ilan University) was the first to recognize the worth of our negotiation environments and joined forces with us. Other top negotiation and agent technology researchers who joined our efforts are Prof. Nick Jennings (University of Southampton) and Dr. Takayuki Ito (Nagoya Institute of Technology. Recently, for my research on negotiation and human negotiators has spurred a collaboration with Prof. Jon Gratch. Nationally I cooperate with many scientists on the various topics of my research.

My students, post-docs and I frequently spend time abroad, and whenever possible I finance a three month stay of my PhD students with a top researcher in their field. We have many international visitors in the group (approximately six on average), and applied for and received first Prof. Maria Gini (Univ. of Minnesota) and later Prof. Victor Lesser (UMass) as visiting professor, paid by the KNAW Visiting Professors programme. We have a long standing cooperations with TNO, Philips, and the Netherlands Defense Academy.

Teaching & Education

I have taught and still teach at all academic levels: BSc, MSc, PhD, post graduates. The courses I lecture generally are in the areas of Artificial Intelligence, Agent Technology, Logic, Negotiation and Research Methodology. The evaluations of my teaching show that I have a talent for explaining difficult topics in a clear way with a good number of examples and excercises for the student to master the topic. Class sizes have varied from tens to hundreds.

I have been involved in most typical committees related to education, such educational programme committees, board of examinations, study advise, programme coordinator. Furthermore, I have regulary served on juries for young talent, such as the Young Talent Graduation prizes (national prizes in Computer Science) and Essence-in-Business.

Invited lectures at international workshops and conferences

I am regularly asked to speak at conferences and workshops in my own field.The invitations to give a keynote lecture at Artificial Economics and IFAC HMS show that my work is appreciated by research communities that for me are applications of my research. The invitation by the Intelligent Agent Technology conference is important to me as it is one of the more important conferences in my research field.

- Simultech 2016, http://www.simultech.org/.
- MATES 2013, http://www.mates2013.de, http://www.mates2013.de/programme/
- Artificial Economics 2011: “Agent-based simulation”, September 2011.
- Intelligent Agent Technology 2011: “Development and Application of Rich Cognitive Models and the Role of Agent-Based Simulation for Policy Making”. August 2011.
- IFAC HMS, Valenciennes, august 2010, www.univ-valenciennes.fr/IFACHMS2010/

PhD Supervision

Current PhD students: 7.
PhD Completed: 17 (2 cum laude)

1. Matthew Johnson, IHMC in the USA. Co-active Design. Started 2009. Co-supervised by Dr. Jeff Bradshaw and Dr. Birna van Riemsdijk. **Cum laude** promotion September 30, 2014.
2. Tim Baarslag, Bidding Strategies for Multi-issue Bargaining. Started 1 February 2010. Co-supervised by Dr. Koen Hindriks. **Cum laude** promotion September 18, 2014.

PhD projects stopped: 6.

Activities for the general public

Making research accessible to the general public is purpose of giving invited lectures for various organisations, writing for ICT related magazines and books, and accepting invitations for articles or interviews from national newspapers, radio and television. I mention a selection:

- National newspapers (Volkskrant, Vrij Nederland, Telegraaf, NRC, Spits) on topics amongst which: the Jonge Akademie, artificial intelligence, dog cognition, and the position of women
- National television and radio appearances: Hoe?Zo! NTR radio and television, “Dat kan beter”

VPRO television, “Labyrinth” VPRO television.

- Book contibutions: NWO & Quest, Stichting Toekomstbeeld der Techniek (2 x), Rathenau
- DJA on Wheels, teaching research for a day at high school
- “Avond van de Wetenschap”, Ridderzaal, Den Haag. A meeting of industry and science, attended by leading members of industry and science, and by the secretary of state of the Ministry of Economic Affairs.

Key Publications

1. Lin, R., Kraus, S., Tykhonov, D., Hindriks, K.V., and **Jonker, C.M.** (2011). Supporting the design of general automated negotiators. In: Ito, T., Zhang, M., Robu, V., Fatima, S., Matsuo, T., and Yamaki, H. (eds.), *Innovations in Agent-Based Complex Automated Negotiations, Studies in Computational Intelligence*, *319*, Springer Berlin / Heidelberg, pp. 69-87.
2. Johnson, M., **Jonker, C.M.,** Riemsdijk, M.B. v., Feltovich, P.J., & Bradshaw, J.M. (2009). Joint activity testbed: blocks world for teams (BW4T). In: Proceedings of the Tenth International Workshop on Engineering Societies in the Agents' World (ESAW'09), *Lecture Notes in Artificial Intelligence*, *5881*, Springer-Verlag, pp. 254-256.
3. Bosse, T., **Jonker, C.M.,** Meij, L. v. d., Sharpanskykh, A., & Treur, J. (2009). Specification and verification of dynamics in agent models. *International Journal of Cooperative Information Systems,18*, 167 - 193.
4. Bosse, T., **Jonker, C.M.,** & Treur, J. (2008). Formalisation of Damasio's theory of emotion, feeling and core consciousness. *Consciousness and Cognition Journal*, *17*, 94-113.
5. Tykhonov, D., **Jonker, C.M.,** Verwaart, D., & Meijer, S. (2008). Agent-based simulation of the Trust and Tracing Game for supply chains and networks, *Journal of Artificial Societies and Social Simulation, 11(3)*, 1.
6. Bosse, T., **Jonker, C.M.,** Meij, L. van der, & Treur, J. (2007). A language and environment for analysis of dynamics by simulation. *International Journal of Artificial Intelligence Tools*, *16*, 435-464.
7. **Jonker, C.M.,** Robu, V., & Treur, J. (2007). An agent architecture for multi-attribute negotiation using incomplete preference information. *Autonomous Agents and Multi-Agent Systems Journal*, *15*, 221 - 252.
8. Hindriks, K.V., **Jonker, C.M.,** & Tykhonov, D. (2006). Eliminating interdependencies between issues for multi-issue negotiation. In: Klusch, M., Rovatsos, M., and Payne, T.R., eds., Cooperative Information Agents X, Proceedings of Tenth International Workshop on Cooperative Information Agents, Edinburgh, United Kingdom, September 11 – 13, *Lecture Notes in Artificial Intelligence*, *4149*, pp. 301 – 316.
9. Bosse, T., & **Jonker**, **C.M.** (2005). Human vs. computer behaviour in multi-issue negotiation. In: Ito, T., Hattori, H., Matsuo, T., and Zhang, M. (eds.), *Proceedings of the First International Workshop on Rational, Robust, and Secure Negotiations in Multi-Agent Systems*, RRS'05, pp. 10-25.
10. Bosse, T., **Jonker, C.M.,** Mey, L. van der, & Treur, J. (2005). LEADSTO: a language and environment for analysis of dynamics by simulation. In: Eymann, T., et al. (eds.), Proceedings of the Third German Conference on Multi-Agent System Technologies, MATES'05. *Lecture Notes in Artificial Intelligence*, *3550*. Springer Verlag, pp. 165-178.
11. Brazier, F.M.T., **Jonker, C.M.,** & Treur, J. (2002). Principles of component-based design of intelligent agents. *Data and Knowledge Engineering*. 41, 1-28.
12. **Jonker, C.M.,** & Treur, J. (2002). Compositional verification of multi-agent systems: a formal analysis of pro-activeness and reactiveness. *International Journal of Cooperative Information Systems*, *11*, 51-92.
13. **Jonker, C.M.,** & Treur, J. (2001). An agent architecture for multi-attribute negotiation. In: B.

Nebel (ed.), *Proceedings of the 17th International Joint Conference on AI*, IJCAI'01. Morgan Kaufman, pp. 1195 - 1201.

14. Castelfranchi, C., Dignum, F., **Jonker**, **C.M.,** & Treur, J. (2000). Deliberative normative agents: principles and architecture. In: N.R. Jennings, Y. Lesperance (eds.), *Intelligent Agents VI. Proceedings of the 6th International Workshop on Agent Theories, Architectures and Languages*, ATAL'99. *Lecture Notes in Artificial Intelligence*, Springer Verlag, pp. 364-378.
15. **Jonker, C.M.**, & Treur, J. (1999). Formal analysis of models for the dynamics of trust based on experiences. In: F. J. Garijo, M. Boman (eds.), *Multi-Agent System Engineering, Proceedings of the 9th European Workshop on Modelling Autonomous Agents in a Multi-Agent World*, MAAMAW'99. *Lecture Notes in Artificial Intelligence*, *1647*, Springer Verlag, Berlin, pp. 221-232. Extended version in: Proceedings of the Agents'99 Workshop on Deception, Fraud and Trust in Agent Societies, pp. 81-94.