

Marc van Zee

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Software Engineer at Google Research, Brain Team

- Published 25 research papers in premier journals and conferences, including Artificial Intelligence Journal, AAAI, IJCAI, ICLR, ECAI, and AAMAS.
- h-index: 9, i10-index: 9
- 3 years of industry experience in programming at Google Brain, mostly in C++, Javascript, and Python.

EDUCATION

Ph.D. – Computer Science, *highest distinction*

University of Luxembourg, Luxembourg, LUX

Thesis: “Rational Architecture = Architecture from a Recommender Perspective”

Internship at Google Pittsburgh, USA (2016) -- Exchange to Stanford University, USA (2015)

MSc.- Artificial Intelligence, *cum laude*

Utrecht University, Utrecht, NL

Graduate Project: “Implementing Temporal Action Logics” at Linköping University, Sweden.

BSc.- Industrial Design

Eindhoven University of Technology, Eindhoven, NL

Participant in the Honours Programme

SELECTED RESEARCH PUBLICATIONS

Journal articles

Intention as Commitment toward Time (Marc van Zee, Dragan Doder, Leendert van der Torre, Mehdi Dastani, Thomas Icard, Eric Pacuit), In *Artificial Intelligence, Elsevier BV*, volume 283, 2020.

Conference Papers

Measuring Compositional Generalization: A Comprehensive Method on Realistic Data (Daniel Keysers, Nathanael Schärli, Nathan Scales, Hylke Buisman, Daniel Furrer, Sergii Kashubin, Nikola Momchev, Danila Sinopalnikov, Lukasz Stafiniak, Tibor Tihon, Dmitry Tsarkov, Xiao Wang, Marc van Zee, Olivier Bousquet), In *International Conference on Learning Representations (ICLR)*, 2019.

RationalGRL: A Framework for Rationalizing Goal Models Using Argument Diagrams (Marc van Zee, Diana Marosin, Sepideh Ghanavati, Floris Bex), In *Proceedings of the 35th International Conference on Conceptual Modeling (ER' 2016)*, 2016.

AGM-Style Revision of Beliefs and Intentions (Marc van Zee, Dragan Doder), In *Proceedings of the 22nd European Conference on Artificial Intelligence (ECAI'16)*, 2016.

Formalizing and Modeling Enterprise Architecture (EA) Principles with Goal-oriented Requirements Language (GRL) (Diana Marosin, Marc van Zee, Sepideh Ghanavati), In *Proceedings of the 28th International Conference on Advanced Information System Engineering (CAiSE16)*, 2016.

ARMED: ARGumentation Mining and reasoning about Enterprise architecture Decisions (Marc van Zee, Dirk van der Linden), In *Proceedings of the 27th Benelux Conference on Artificial Intelligence (BNAIC2015)*, 2015.

- Rationalization of Goal Models in GRL using Formal Argumentation (Marc van Zee, Floris Bex, Sepideh Ghanavati), In *Proceedings of RE: Next! track at the Requirements Engineering Conference 2015 (RE'15)*, 2015.
- Rational Architecture = Architecture from a Recommender Perspective (Marc van Zee), In *Proceedings of the International Joint Conference on Artificial Intelligence (IJCAI2015)*, 2015.
- AGM Revision of Beliefs about Action and Time (Marc van Zee, Mehdi Dastani, Dragan Doder, Leendert van der Torre), In *Proceedings of the International Joint Conference on Artificial Intelligence (IJCAI2015)*, 2015.
- Bridging Social Network Analysis and Judgment Aggregation (Silvano Colombo Tosatto, Marc van Zee), In *Proceedings of the 6th International Conference on Social Informatics*, 2014.
- Capturing Evidence and Rationales with Requirements Engineering and Argumentation-Based Techniques (Marc van Zee, Sepideh Ghanavati), In *Proceedings of the 26th Benelux Conference on Artificial Intelligence (BNAIC2014)*, 2014.
- Collective Intention Revision from a Database Perspective (Marc van Zee, Mehdi Dastani, Yoav Shoham, Leendert van der Torre), In *Collective Intentionality Conference*, 2014.
- On the Semantic Feature Structure of Modeling Concepts: an Empirical Study (Dirk van der Linden, Marc van Zee), In *16th IEEE Conference on Business Informatics (CBI)*, 2014.
- Social Network Analysis for Judgment Aggregation (Silvano Colombo Tosatto, Marc van Zee), In *13th International Conference on Autonomous Agents and Multiagent Systems (AAMAS2014)*, 2014. (Extended Abstract)
- Multi-Cycle Query Caching in Agent Programming (Natasha Alechina, Tristan Behrens, Mehdi Dastani, Koen Hindriks, Koen Hubner, Fred Jomi, Brian Logan, Hai H. Nguyen, Marc van Zee), In *Twenty-Seventh AAAI Conference on Artificial Intelligence (AAAI)*, 2013.

Workshop Papers

- Intention Reconsideration as Metareasoning (Marc van Zee, Thomas Icard), In *Bounded Optimality and Rational Metareasoning NIPS 2015 Workshop*, 2015.
- Consistency Conditions for Beliefs and Intentions (Marc van Zee, Mehdi Dastani, Dragan Doder, Leendert van der Torre), In *Twelfth International Symposium on Logical Formalizations of Commonsense Reasoning*, 2015.
- Encoding Definitional Fragments of Temporal Action Logic into Logic Programming (Marc van Zee, Patrick Doherty, John-Jules Meyer), In *International Workshop on Defeasible and Ampliative Reasoning (DARe)*, 2014.
- Belief Caching in 2APL (Mehdi Dastani, Marc van Zee), In *The workshop on Engineering Multi-Agent Systems (EMAS)*, 2013.

EMPLOYMENT HISTORY

GOOGLE BRAIN, 2017-now

Software Engineer

I am currently working as a Software Engineer at Google Research, in the Brain team in Amsterdam, the Netherlands. My overall research interest lies in building systems that can perform commonsense reasoning, by applying techniques/ideas from formal knowledge representation to machine learning architectures.

GOOGLE, 2016

PhD Internship Software Engineering

Situation: The constraint resolution algorithm for assigning attributes to products in Google Shopping has to be improved.

Task: Identify clusters of product for which the current constraint resolution algorithm performs poorly and develop an algorithm to improve it by measuring precision and recall.

Action: Investigated optimized constraint resolution approach to weighing labels from text extraction using linear programming. Created the formalism, implemented a prototype solution, and evaluated it against the existing one. C++.

Result: The implementation of the integer linear programming algorithm is part of the Google codebase and outperforms it in terms of precision and recall in various product categories. It is conceptually simpler than the previous one as well.

TEACHING

2013-2016

- Assistant *Selected Topics in A.I.* by Emil Weydert, University of Luxembourg
- Assistant *Intelligent Agents 1* by Leendert van der Torre, University of Luxembourg

2012

- Assistant *Introduction to Adaptive Systems*, by Gerard Vreeswijk, Utrecht University
- Assistant *Introduction to Linguistics*, by Y. Winter and A. Chernilovskaya, Utrecht University

Program Committee (PC) member

- Neural Information Processing Systems, 2020 (NeurIPS2020)
- International Joint Conference on Artificial Intelligence and the 17th Pacific Rim International Conference on Artificial Intelligence (IJCAI-PRICAI 2020)
- International Conference on Principles and Practice of Multi-Agent Systems (PRIMA2019)
- International i* Workshop, 2017 (iStar2018)
- International i* Workshop, 2017 (iStar2017)
- International Joint Conference on Artificial Intelligence, 2017 (IJCAI2017)
- Workshop on Collaborative Aspects of Formal Methods, 2016 (COLAFORM2016)

Other Academic Activities

- Organizer of the ICR Symposium: "A Decade of ICR" (2016)
- Member of the working group WG12.1 "Knowledge Representation and Reasoning" of the Technical Committee on Artificial Intelligence (TC12)
- Tutorial Business Process Compliance Analysis: A Graphical Representation with Tool Support" at the Requirement Engineering conference 2015, with Sepideh Ghanavati and Diana Marosin
- Reviewer of Journal of Systems and Software (J. Syst. Software) and other ad-hoc paper reviewing.
- Board member of the Benelux A.I. Association (BNVKI).
- Workshop assistant Agent-Oriented Programming, by Mehdi Dastani, European Agents Systems Summer School 2013 (EASSS2013)