

# 30 Years of Engineering Multi-Agent Systems: What and Why?

Michael Winikoff  
 Victoria University of Wellington  
 Wellington, New Zealand  
 michael.winikoff@vuw.ac.nz

## ABSTRACT

Research on Engineering Multi-Agent Systems (EMAS) aims to provide software engineers with what they need to be able to effectively develop multi-agent systems. The field is broad, covering foundational concepts, notations, processes, techniques, tools, and languages. Although it is difficult to pin down a precise year, it can be argued that the community is now 30 years old [1]. This talk will review where the field is, and outline some challenges and future directions. In addition to answering the question “What is EMAS?” the talk aims to raise the profile of the field and the community, answering the question “Why should I care?”.

## KEYWORDS

Engineering Multi-Agent Systems; Software Development; Methodologies; Programming Languages

## ACM Reference Format:

Michael Winikoff. 2024. 30 Years of Engineering Multi-Agent Systems: What and Why? . In *Proc. of the 23rd International Conference on Autonomous Agents and Multiagent Systems (AAMAS 2024)*, Auckland, New Zealand, May 6 – 10, 2024, IFAAMAS, 1 page.

## BIOGRAPHY

Michael Winikoff is a Full Professor (and currently Head of School) at the School of Information Management at Victoria University of Wellington. He completed his PhD at Melbourne University in 1997, and has subsequently worked at institutions including RMIT University (Melbourne, Australia), and Otago University (Dunedin, New Zealand). He is known for his work on engineering aspects of autonomous systems, including the *Prometheus* methodology. More recently, he has been working on issues relating to trust in autonomous systems, including verification and explanation. Michael is on the IFAAMAS board of directors, has previously been IFAAMAS secretary and is currently IFAAMAS president. He was the Program Co-Chair and General Co-Chair for the conference on Autonomous Agents and Multi-Agent Systems in 2012 and 2017, respectively, and is currently co-Editor-in-Chief of the Journal of Autonomous Agents and Multi-Agent Systems.



## ACKNOWLEDGMENTS

I would like to thank all of the colleagues I have collaborated with over the years, but especially Lin Padgham, who brought me into the field, and who has been a colleague, mentor, and friend. My work has been funded by the Australian Research Council, the University of Otago, and Victoria University of Wellington. The title of the talk is based on a 2014 talk by Koen Hindriks [1].

## REFERENCES

- [1] Koen V. Hindriks. 2014. The Shaping of the Agent-Oriented Mindset - Twenty Years of Engineering MAS. In *Engineering Multi-Agent Systems - Second International Workshop, EMAS 2014, Paris, France, May 5-6, 2014, Revised Selected Papers (Lecture Notes in Computer Science, Vol. 8758)*, Fabiano Dalpiaz, Jürgen Dix, and M. Birna van Riemsdijk (Eds.). Springer, 1–14. [https://doi.org/10.1007/978-3-319-14484-9\\_1](https://doi.org/10.1007/978-3-319-14484-9_1)



This work is licensed under a Creative Commons Attribution International 4.0 License.

*Proc. of the 23rd International Conference on Autonomous Agents and Multiagent Systems (AAMAS 2024)*, N. Alechina, V. Dignum, M. Dastani, J.S. Sichman (eds.), May 6 – 10, 2024, Auckland, New Zealand. © 2024 International Foundation for Autonomous Agents and Multiagent Systems ([www.ifaamas.org](http://www.ifaamas.org)).