**Professor Ann Nowé:**

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I'm co-director of the AI lab of the VUB, I have published in total more than papers of which 260 in the past 10 years. All papers are peer-reviewed. In the past 10 years 37 papers have been published at top conferences (such as AAAI, IJCAI, AAMAS, ICML, EC ML, ...) or first quartile journals (such as JMLK, IEEE transactions, JAAMAS, Bioinformatics). Many publications are with PhD students who work under my direct supervision. I also have 163 publications with co-authors from 51 other institutions, which illustrates my large international network. My Google scholar index is 34 (per 1/6/20). Under my supervision 25PhDs have been completed. My former PhD students have taken up academic positions at the University of Liverpool, the University of Delft, the University of Eindhoven, the University of Maastricht, and positions in companies such as Google Deepmind and PROWLER.io Cambridge, UK. I was involved in the creation of 1 spin-off.

## RESEARCH INTERESTS:

Reinforcement Learning (RL); Learning in Multi-agent Systems; Machine Learning for Data Mining; Transparent and Explainable AI; Computational Biology.

## PROFESSION EXPERIENCE & EDUCATION

- 2012-present: Full professor, 90% Faculty of Sciences and Bioengineering Science & 10% Faculty of Engineering Vrije Universiteit Brussel, Belgium.

- 2004-2011: Associate professor, 90% Faculty of Sciences and Bioengineering Sciences, 10% Faculty of Engineering, Vrije Universiteit Brussel, Belgium.

- 1999-2004: Assistant professor, 90% Faculty of Sciences and Bioengineering Sciences, 10% Faculty of Engineering, Vrije Universiteit Brussel, Belgium.

- 1997-1999: Postdoctoral researcher funded by the National Science Foundation FWO-Vlaanderen. Faculty of Engineering, Vrije Universiteit Brussel, Belgium.

- 1994-1997: Postdoctoral researcher funded by the Vrije Universiteit Brussel. Faculty of Engineering, Vrije Universiteit Brussel. Belgium.

- 1988-1994: Teaching assistant, Faculty of Engineering, Vrije Universiteit Brussel, Belgium.

- 1992-1994: Visiting Researcher, Aeronautical Department, Queen Mary and Westfield College University London, UK, Scholarship for the British Council.

- 1994: PhD in Sciences Title of thesis: Synthesis of "safe" fuzzy controllers based on reinforcement Learning. Faculty of Sciences, Vrije Universiteit Brussel, Belgium in Collaboration with Queen Mary and Westfield College University London, UK.

- 1987: Master in Mathematics, Minor in Computer Science, Faculty of Sciences, Universiteit Gent, Belgium.

## SELECTED PUBLICATIONS (For complete list see: https://ai.vub.ac.be/members/ann-nowe)

- Kristof Van Moffaert; Ann Nowé. [J] Multi-Objective Reinforcement Learning using Sets of Pareto Dominating Policies. Journal of Machine Learning Research, Vol. 15, 2014, p. 3483- 3512.

- Anna Harutyunyan, Peter Vrancx, Pierre-Luc Bacon, Donia Precup and Ann Nowé. Learning with options that terminate off-policy[C] Thirty-Second AAAI Conference on Artificial Intelligence. 2018.

- Denis Steckelmacher, Diederik M. Roijers, Anna Harutyunyan, Peter Vrancx, Helene Plisnier, Ann Nowé. Reinforcement learning in POMDPs with memoryless options and option-observation initiation sets[C] Thirty-Second AAAI Conference on Artificial Intelligence. 2018.

- De Clercq S, Schockaert S, Nowé A, et al. Modelling incomplete information in Boolean games using possibilistic logic[J]. International Journal of Approximate Reasoning, 2018, 93: 1-23.

- Sofie De Clercq, Kim Bauters, Steven Schockaert, Mihail Mihaylow, Ann Nowé. Exact and heuristic methods for solving Boolean games[J] Autonomous Agents and Multi-Agent Systems, 2017, 31(1): 66-106.

- Pieter Libin, Ewout Vanden Eynden, Francesca Incardona, Ann Nowé, Antonia Bezenchek, EucoHIV Study Group. PhyloGeoTool: interactively exploring large phylogenies in an epidemiological context[J]. Bioinformatics, 2017, 33(24): 3993-3995.

- Radulescu Roxana, Vrancx Peter, Nowe Ann. Analysing congestion problems in multi-agent reinforcement learning[C] Proceedings of the 16th Conference on Autonomous Agents and Multiagent Systems. (AAMAS2017). IFAAMAS, 2017: 1705-1707.

- Fernandez Domingos Elias, Burguillo Juan C, Nowe Ann, Lenaerts Tom. Coordinating human and agent behavior in collective-risk scenarios[C] Thirty-First AAAI Conference on Artificial Intelligence, 2017.

- Kristof Van Moffaert, Madalina Drugan and Ann Nowé, "Scalarized multi-objective reinforcement learning: Novel design techniques," 2013 IEEE Symposium on Adaptive Dynamic Programming and Reinforcement Learning (ADPRL), Singapore, 2013, pp. 191-199, doi: 10.1109/ADPRL.2013.6615007.

- Ann Nowé, Peter Vrancx Yann-Michael De Hauwere (2012) Game Theory and Multi-agent Reinforcement

Learning. In: Wiering M., van Otterlo M. (eds) Reinforcement Learning. Adaptation, Learning, and Optimization, vol 12. Springer, Berlin, Heidelberg

## MEMBERSHIPS OF SCIENTIFIC SOCIETIES

➢ 2003-present: Senior Steering Committee Members of the yearly workshop on Adaptive Learning Agents (ALA), co-located with AAMAS
➢ 2018-present: Board Member of The International Foundation for Autonomous Agents and Multiagent Systems (IFAAMAS)
➢ 2011-2016: Board Member of EURAI (formerly named ECCAI the European Coordinating Committee for Artificial Intelligence)
➢ 2010-2015: IEEE Computational Intelligence Society (CIS), Technical Committee on Adaptive Dynamic Programming and Reinforcement Learning (ADPRL TC)
➢ 2008-2015: Board member BNVKI, BeNeLux association for AI. The Iast4 years (second term), chairman of the association.
➢ Regular reviewer for EPSRC and NOW, Journals such as JAAMAS, JAIR, IEEE, KER, and international conferences including: ICML, AAAI, ECML, AAMAS, GECCO.
➢ PC Chair (with Ulle Endris ) for AAMAS 2021.

## INTERNATIONAL LECTURING AND INVITED TALK

➢ Invited talk "How Reinforcement Learning and Formal Verification might meet", FMAI 2019, Second International Workshop of Formal Methods and AI in Rennes.
➢ Tutorial "Multi-agent reinforcement learning" at the international conference on Autonomous Agents and Multiagent Systems, AAMAS, May 2012 and 2014.
➢ Tutorial "Reinforcement Learning in Single and Multi-Agent Settings" at the international conference on Autonomous Agents and Multiagent Systems, AAMAS, May 2016.
➢ Invited tutorial on Reinforcement. Learning at SUM, The International Conference on Scalable Uncertainty Management, September 2016.
➢ Invited talk "Multi-Criteria Reinforcement Learning" at the 26th Workshop on Computational Intelligence on 24th November2016, Dortmund.
➢ Invited talk "Smart systems opportunities in an Internet of Things (loT) age" at the Bavarian Academy of Sciences and Humanities, 27th June 201 6, Munchen
➢ Tutorial "Multi-agent reinforcement learning" at the Lorentz Center Workshop "Dynamics of MultiAgent Systems" 2018.

## AWARDS:

➢ 2015: **Best paper** award at the Adaptive Learning Agents workshop at the International AAMAS conference.
➢ 2015: **Best demo** award at AAMAS 2015 Smart grid demo (EU FP7 project SCANERGY).
➢ 2015: **Visiting Fellowship** from the University of Liverpool from 30/06/15 till 09/07/15.
➢ 2016: **IBM award** of scientific excellence, 3rd prize, Small grid demo platform for renewable energy exchange.
➢ 2017: **Best Demo** award at BNAlC'17. Hierarchical Reinforcement Learning for a Robotic Partially Observable Task.
➢ 2017: **Best paper** award at the Hierarchical KL workshop at NIPS.
➢ 2018: **Best student paper** award at ICTAI 2018. Deep learning for 3D point segmentation
➢ 2019: **Best demo at BNAIC'19** A Motorized Wheelchair that Learns to Make its Way through a Crowd

## SELECTION of RESEARCH PROJECTS

➢ 2019.01-2022.12: FWO G062819N: Interpretable Reinforcement Learning. Budget: 240.000 EUR.
➢ 2017.01-2012.12FWO WOG - Guiding networked societies, linking data science and modelling Budget 62.500 EUR.
➢ 2017.01-2020.12: EU521: ODYCCEUS. Budget: 982.500 EUR.
➢ 2015.01-2018.12: IWTSBO2: SMILE-IT: Stable Multi-agent Learning for Networks. Budget: 603.530 EUR.
➢ 2015.09-2018.08: BRGIMP4: SECLOUD, Innoviris BRIDGE 2014. Budget: 314.800 EUR.
➢ 2014.01-2017.12: FWOAL726: Multi-criteria Reinforcement Learning. Budget: 260.000 EUR.
➢ 2014.03-2016.02: BRGEOZ253: BRiDGEiris Brussels Big Data platform for sharing and discovering in clinical Genomics. Innoviris. Budget: 371.880 EUR.
➢ 2013.01-2016.01: IWT588: An Integrated Methodology to Bring Intelligent Robotic Assistive Devices to User. Budget: 240.000 EUR.