Talal Rahwan

Last update: 30-January-2023

Education

- **2003 – 2007: Ph.D. in Computer Science**
  - School of Electronics and Computer Science (ECS), University of Southampton, UK
  - **Dissertation Title:** Algorithms for Coalition Formation in Multi-Agent Systems
  - **Supervisor:** Prof. Nicholas R. Jennings.

- **1998 – 2003**: **B.Eng. in Informatics**
  - Informatics Engineering, University of Aleppo, Syria (specialization: Software Engineering).

Employment

- **2018 – present: Associate Professor of Computer Science**
  - Department of Computer Science, New York University Abu Dhabi, UAE.

- **2013 – 2018: Assistant Professor of Computer Science**
  - Department of Computer Science, Masdar Institute, Khalifa University, UAE.

- **2008 – 2013: Research Fellow/ Senior Research Fellow**
  - School of Electronics and Computer Science, University of Southampton, UK.

Selected Publications

- F Liu, T Rahwan, B AlShebli (2023). "*Non-White scientists appear on fewer editorial boards, spend more time under review, and receive fewer citations.*" **Proceedings of the National Academy of Sciences (PNAS)**.

- F Liu, P Holme, M Chiesa, B AlShebli, T Rahwan (2023). "*Gender inequality and self-publication are common among academic editors*." **Nature Human Behaviour**.

- M Waniek, W Magdy, T Rahwan (2022). "*Hiding Opinions from Machine Learning*." **PNAS Nexus**.

- M Waniek, G Raman, B AlShebli, J Peng, T Rahwan (2021). "*Traffic Networks are Vulnerable to Disinformation Attacks*." **Scientific Reports**.

- F Ishowo-Oloko, J Bonnefon, Z Soroye, J Crandall, I Rahwan, T Rahwan (2019). "*Behavioural Evidence for a Transparency-Efficiency Tradeoff in Human-Machine Cooperation*." **Nature Machine Intelligence**.

- M Waniek, K Zhou, Y Vorobeychik, E Moro, T Michalak, T Rahwan (2019). "*How to Hide One's Relationships from Link Prediction Algorithms*." **Scientific Reports**.

- B AlShebli, T Rahwan, W Woon (2018). "*The Preeminence of Ethnic Diversity in Scientific Collaborations*." **Nature Communications**.

- M Waniek, T Michalak, M Wooldridge, T Rahwan (2018). "*Hiding Individuals and Communities in a Social Network*." **Nature Human Behaviour**.

- P Szczepanski, T Michalak, T Rahwan (2016). "*Efficient Algorithms for Game-Theoretic Betweenness Centrality*." Artificial Intelligence Journal (**AIJ**).

- T Rahwan, T Michalak, N Jennings (2012). "*A Hybrid Algorithm for Coalition Structure Generation*." The **AAAI** Conference on Artificial Intelligence.

- T Rahwan, S Ramchurn, A Giovannucci, N Jennings (2009). "*An Anytime Algorithm for Optimal Coalition Structure Generation*." Journal of Artificial Intelligence Research (**JAIR**).

All Publications

For each publication, my role is specified as [mentor], [author], or [lead] i.e., first author. As for co-authors, their names are coloured as follows: Red = my name; Green = student in my lab; Purple = student in a different lab; Orange = postdoc or research engineer in my lab.

P1.   [mentor]: F Liu, T Rahwan, B AlShebli (2023). "*Non-White scientists appear on fewer editorial boards, spend more time under review, and receive fewer citations.*" **Proceedings of the National Academy of Sciences (PNAS)**. Publisher: United States National Academy of Sciences.

P2.   [mentor]: F Liu, P Holme, M Chiesa, B AlShebli, T Rahwan (2023). "*Gender inequality and self-publication are common among academic editors.*" **Nature Human Behaviour**. Publisher: Nature Research.

P3.   [mentor]: M Chaqfeh, R Asim, B AlShebli, M Zaffar, T Rahwan, Y Zaki (2023). "*Towards a World Wide Web without digital inequality.*" **Proceedings of the National Academy of Sciences (PNAS)**. Publisher: United States National Academy of Sciences.

P4.   [mentor]: K Makovi, A Sargsyan, W Li, J Bonnefon, T Rahwan (2023). "*Trust within human-machine collectives depends on the perceived consensus about cooperative norms.*" **Nature Communications** Publisher: Nature Research. Accepted; to appear.

P5.   [mentor]: B Battu, T Rahwan (2023). "*Cooperation without punishment.*" **Scientific Reports**. Publisher: Nature Research.

P6.   [mentor]: M Waniek, W Magdy, T Rahwan (2022). "*Hiding Opinions from Machine Learning.*" **PNAS Nexus**. Publisher: United States National Academy of Sciences.

P7.   [mentor]: M Waniek, P Holme, K Farrahi, R Emonet, M Cebrian, T Rahwan (2022). "*Trading contact tracing efficiency for finding patient zero.*" **Scientific Reports**. Publisher: Nature Research.

P8.   [mentor]: M Waniek, P Holme, M Cebrian, T Rahwan (2022). "*Social diffusion sources can escape detection.*" **iScience**. Publisher: Cell Press.

P9.   [mentor]: B AlShebli, E Cheng, M Waniek, R Jagannathan, P Hernandez-Lagos, T Rahwan (2022). "*Beijing's Central Role in Global Artificial Intelligence Research.*" **Scientific Reports**. Publisher: Nature Research.

P10. [mentor]: M Waniek, P Holme, T Rahwan (2022). "*Hiding in Temporal Networks.*" **IEEE Transactions on Network Science and Engineering**. Publisher: IEEE.

P11. [mentor]: M Chaqfeh, R Coke, J Hu, W Hashmi, L Subramanian, T Rahwan, Y Zaki (2022) "*JSAnalyzer: A Web Developer Tool for Simplifying Mobile Web Pages Through Non-Critical JavaScript Elimination.*" **ACM Transactions on the Web**. Publisher: ACM (Association for Computing Machinery).

P12. [mentor]: M Waniek, G Raman, B AlShebli, J Peng, T Rahwan (2021). "*Traffic Networks are Vulnerable to Disinformation Attacks.*" **Scientific Reports**. Publisher: Nature Research.

P13. [mentor]: M Godziszewski, M Waniek, Y Zhu, K Zhou, T Rahwan, T Michalak (2021). "*Attacking Similarity-Based Sign Prediction.*" In Proceedings of the 21st **International Conference on Data Mining (ICDM)** in Auckland, New Zealand. Acceptance rate 20%.

P14. [mentor]: M Waniek, J Woźnica, K Zhou, Y Vorobeychik, T Rahwan, T Michalak (2021). "*Strategic Evasion of Centrality Measures.*" In Proceedings of the 20th International Conference on **Autonomous Agents and Multi-Agent Systems (AAMAS)** in London, UK. Acceptance rate 25%.

P15. [mentor]: M Sahakyan, Z Aung, T Rahwan. (2021). "*Explainable Artificial Intelligence for Tabular Data: A Survey.*" **IEEE Access**. Publisher: IEEE.

P16. [mentor]: M Waniek, T Michalak, M Wooldridge, T Rahwan (2021). "*How Members of Covert Networks Conceal the Identities of Their Leaders.*" **ACM Transactions on Intelligent Systems and Technology** (TIST) 13.1: 1-29.

P17. [mentor]: G Raman, B AlShebli, M Waniek, T Rahwan, J Peng (2020). "*How weaponizing disinformation can bring down a city's power grid.*" **PLOS ONE**, 15(8), e0236517.

P18. [mentor]: M Waniek, T Michalak, T Rahwan (2020). "*Hiding in Multilayer Networks.*" In Proceedings of the 34th **AAAI Conference on Artificial Intelligence**, in New York, USA. Acceptance rate 21%.

P19. [mentor]: T Wąs, M Waniek, T Rahwan, T Michalak (2020). "*The Manipulability of Centrality Measures - An Axiomatic Approach.*" In Proceedings of the 19th International Conference on **Autonomous Agents and Multi-Agent Systems (AAMAS)** in Auckland, New Zealand. Acceptance rate 23%.

P20. [mentor]: S Maleki, T Rahwan, S Ghosh, A Malibari, D Alghazzawi, A Rogers, H Beigy, N Jennings (2020). "*The Shapley Value for a Fair Division of Group Discounts for Coordinating Cooling Loads.*" **PLOS ONE**, 15(1), e0227049.

P21. [mentor]: F Ishowo-Oloko, J Bonnefon, Z Soroye, J Crandall, I Rahwan, T Rahwan (2019). "*Behavioural Evidence for a Transparency-Efficiency Tradeoff in Human-Machine Cooperation.*" **Nature Machine Intelligence**. Publisher: Nature Research, 1(11), 517-521.

P22. [mentor]: M Waniek, K Zhou, Y Vorobeychik, E Moro, T Michalak, T Rahwan (2019). "*How to Hide One's Relationships from Link Prediction Algorithms.*" **Scientific Reports**. Publisher: Nature Research, 9(1), 1-10.

P23. [mentor]: B AlShebli, O.Skibski, M Wooldridge, T Michalak, T Rahwan (2019). "*A Measure of Added Value in Groups.*" **ACM Transactions on Autonomous and Adaptive Systems**. 13(4), 18. Publisher: ACM (Association for Computing Machinery).

P24. [author]: O Skibski, T Rahwan, T Michalak, M Yokoo (2019). "*Attachment Centrality: Measure for Connectivity in Networks.*" **Artificial Intelligence (AIJ)**. 274. Pages: 151--179. Publisher: Elsevier.

P25. [author]: O Skibski, T Rahwan, T Michalak, M Wooldridge (2019). "*Enumerating Connected Subgraphs and Computing the Myerson and Shapley Values in Graph-Restricted Games.*" **ACM Transactions on Intelligent Systems and Technology**. Publisher: ACM (Association for Computing Machinery).

P26. [mentor]: G Raman, J Peng, T Rahwan (2019). "*Manipulating Residents' Behavior to Attack the Urban Power Distribution System.*" **IEEE Transactions on Industrial Informatics**. Publisher: IEEE.

P27. [mentor]: T Was, T Rahwan, O Skibski (2019). "*Random Walk Decay Centrality.*" In Proceedings of

the 33rd **AAAI Conference on Artificial Intelligence**, in Honolulu, Hawaii, USA. Acceptance rate 16%.

P28. [mentor]: K Zhou, T Michalak, M Waniek, T Rahwan, Y Vorobeychik (2019). "*Attacking Similarity-Based Link Prediction in Social Networks*." In Proceedings of the 18th International Conference on **Autonomous Agents and Multi-Agent Systems (AAMAS)** in Montreal, Canada. Acceptance rate 24%.

P29. [mentor]: B AlShebli, T Rahwan, W Woon (2018). "*The Preeminence of Ethnic Diversity in Scientific Collaborations*." **Nature Communications**. Publisher: Nature Research, 9(1), 1-10.

P30. [mentor]: M Waniek, T Michalak, M Wooldridge, T Rahwan (2018). "*Hiding Individuals and Communities in a Social Network*." **Nature Human Behaviour**. Publisher: Nature Research, 2(2), 139-147.

P31. [author]: O Skibski, T Michalak, T Rahwan (2018). "*Axiomatic Characterization of Game-Theoretic Centrality*." **Journal of Artificial Intelligence Research (JAIR)**. 62. Pages: 33-68 Publisher: AAAI (Association for the Advancement of Artificial Intelligence).

P32. [author]: L Kotthoff, T Michalak, T Rahwan, H Hoos, K Leyton-Brown (2018). "*Quantifying Algorithmic Improvements over Time*." In Proceedings of the 27th **International Joint Conference on Artificial Intelligence (IJCAI)**, Special Track on the Evolution of the Contours of AI, in Stockholm, Sweden. Acceptance rate 23%.

P33. [mentor]: M Oudah, T Rahwan, T Crandall, J Crandall (2018). "*How AI Wins Friends and Influences People in Repeated Games with Cheap Talk*." In Proceedings of the 32nd **AAAI Conference on Artificial Intelligence**, in New Orleans, Louisiana, USA. Acceptance rate 25%.

P34. [mentor]: M Aftab, C Chen, C Chau, T Rahwan (2017). "*Automatic HVAC control with real-time occupancy recognition and simulation-guided model predictive control in low-cost embedded system*." **Energy and Buildings**. Volume: 154. Pages: 141--156. Publisher: Elsevier.

P35. [author]: F Jahedpari, T Rahwan, S Hashemi, T Michalak, M De Vos, J Padget, W Woon (2017). "*Online Prediction via Artificial Continuous Prediction Markets*." **IEEE Intelligent Systems**. 32(1). Pages 61--68. Publisher: IEEE.

P36. [author]: T Michalak, T Rahwan, M Wooldridge (2017). "*Strategic Social Network Analysis*." In Proceedings of the 31st **AAAI Conference on Artificial Intelligence**, in San Francisco, USA. Featured in the Senior Member track. According to the conference's website:

P37. The Senior Member track is "*open to researchers who have acquired an international recognition, and have established a significant publication record of [Artificial Intelligence]-related research*", to present a "*well-developed body of research, an important new research area, or a promising new topic.*"

P38. [author]: O Skibski, T Rahwan, T Michalak (2017). "*Axiomatic Characterization of Game-Theoretic Network Centralities*." In Proceedings of the 31st **AAAI Conference on Artificial Intelligence**, in San Francisco, USA. Acceptance rate 25%.

P39. [mentor]: M Waniek, T Michalak, T Rahwan, M Wooldridge (2017). "*On the Construction of Covert Networks*." In Proceedings of the 16th International Conference on **Autonomous Agents and Multi-Agent Systems (AAMAS)** in Sao Paulo, Brazil. Acceptance rate 26%.

P40. [author]: T Michalak, T Rahwan, E Elkind, M Wooldridge, N Jennings (2016). "*A Hybrid Exact Algorithm for Complete Set Partitioning*." **Artificial Intelligence (AIJ)**. 230. Pages 14--40. Publisher: Elsevier.

P41. [mentor]: P Szczepanski, T Michalak, T Rahwan (2016). "*Efficient Algorithms for Game-Theoretic Betweenness Centrality*." **Artificial Intelligence (AIJ)**. 231. Pages 39--63. Publisher: Elsevier.

P42. [author]: O Skibski, T Rahwan, T Michalak, M Yokoo (2016). "*Attachment Centrality: An Axiomatic Approach to Connectivity in Networks*." In Proceedings of the 15th International Conference on **Autonomous Agents and Multi-Agent Systems (AAMAS)** in Singapore. Acceptance rate 25%.

P43. [author]: M Tarkowski, P Szczepanski, T Rahwan, T Michalak, M Wooldridge (2016). "*Closeness Centrality for Networks with Overlapping Community Structure*." In Proceedings of the 30th **AAAI Conference on Artificial Intelligence**, in Phoenix, USA. Acceptance rate 26%.

P44. [author]: A Frechette, L Kotthoff, T Michalak, T Rahwan, H Hoos, K Leyton-Brown (2016). "*Using the Shapley Value to Analyze Algorithm Portfolios*." In Proceedings of the 30th **AAAI Conference on Artificial Intelligence**, in Phoenix, USA. Acceptance rate 26%.

P45. [author]: P Szczepanski, T Rahwan, T Michalak, M Wooldridge (2016). "*An Extension of the Owen-Value interaction index and Its Application to Inter-links Prediction*." In Proceedings of the 22nd **European Conference on Artificial Intelligence (ECAI)** in The Hague, Netherlands. Acceptance rate 27%.

P46. [lead]: T Rahwan, T Michalak, M Wooldridge, N Jennings (2015). "*Coalition Structure Generation: A Survey*." **Artificial Intelligence (AIJ)**. 229. Pages 139--174. Publisher: Elsevier.

P47. [author]: T Michalak, T Rahwan, O Skibski, M Wooldridge (2015). "*Defeating Terrorist Networks with Game Theory.*" **IEEE Intelligent Systems**. 30(1). Pages 53--61. Publisher: IEEE.

P48. [author]: T Michalak, T Rahwan, S Moretti, R Narayanam, O Skibski, P Szczepankski, M Wooldridge (2015). "*A New Approach to Measure Social Capital using Game-Theoretic Techniques*." **ACM Special Interest Group on E-commerce**. 14(1). Publisher: ACM (Association for Computing Machinery).

P49. [mentor]: P Szczepanski, T Michalak, T Rahwan (2015). "*The Game-Theoretic Interaction Index on Social Networks with Applications to Link Prediction and Community Detection*." In Proceedings of the 24th **International Joint Conference on Artificial Intelligence (IJCAI)** in Buenos Aires, Argentina. Acceptance rate 29%.

P50. [mentor]: M Waniek, A Niescieruk, T Michalak, T Rahwan (2015). "*Spiteful Bidding in the Dollar Auction*." In Proceedings of the 24th **International Joint Conference on Artificial Intelligence (IJCAI)** in Buenos Aires, Argentina. Acceptance rate 29%.

P51. [author]: T Michalak, P Szczepanski, T Rahwan, A Chrobak, S Branzei, M Wooldridge, N Jennings (2014). "*Implementation and Computation of a Value for Generalized Characteristic Function Games*." **ACM Transactions on Economics and Computation**. 2, 4. Pages 16:1--16:35. Publisher: ACM (Association for Computing Machinery).

P52. [author]: O Skibski, T Michalak, T Rahwan, M Wooldridge (2014). "*Algorithms for the Shapley and Myerson values in Graph-Restricted Games*." In Proceedings of the 13th International Conference on **Autonomous Agents and Multi-Agent Systems (AAMAS)** in Paris, France. 197-204. Acceptance

rate 24%.

P53. [mentor]: K Pawlowski, K Kurach, K Svensson, S Ramchurn, T Michalak, T Rahwan (2014). "*Coalition Structure Generation with the Graphics Processing Unit.*" In Proceedings of the 13th International Conference on **Autonomous Agents and Multi-Agent Systems (AAMAS)** in Paris, France. Pages 293-300. Acceptance rate 24%.

P54. [lead]: T Rahwan, T-D Nguyen, T Michalak, M Polukarov, M Croitoru, N Jennings (2013). "*Coalitional Games via Network Flows.*" In Proceedings of the 23rd **International Joint Conference on Artificial Intelligence (IJCAI)** in Beijing, China. Acceptance rate 28%.

P55. [author]: T Michalak, T Rahwan, P Szczepanski, O Skibski, R Narayanam, M Wooldridge, N Jennings (2013). "*Computational Analysis of Connectivity Games with Applications to the Investigation of Terrorist Networks.*" In Proceedings of the 23rd **International Joint Conference on Artificial Intelligence (IJCAI)** in Beijing, China. Acceptance rate 28%.

P56. [author]: L Tran-Thanh, T-D Nguyen, T Rahwan, A Rogers, N Jennings (2013). "*An Efficient Vector-based Representation for Coalitional Games.*" In Proceedings of the 23rd **International Joint Conference on Artificial Intelligence (IJCAI)** in Beijing, China. Acceptance rate 28%.

P57. [author]: S Brânzei, T Michalak, T Rahwan, K Larson, N Jennings (2013). "*Matchings with Externalities and Attitudes.*" In Proceedings of the 12th International Conference on **Autonomous Agents and Multi-Agent Systems (AAMAS)** in Minnesota, USA. Acceptance rate 23%.

P58. [author]: S Ramchurn, M Osborne, O Parson, S Maleki, T Rahwan, T Huynh, S Reece, M Alam, J Fischer, G Hines, E Costanza, L Moreau, T Rodden (2013). "*AgentSwitch: Smart Energy Tariff Selection using Agent Technology.*" In Proceedings of the 12th International Conference on **Autonomous Agents and Multi-Agent Systems (AAMAS)** in Minnesota, USA. Acceptance rate 23%.

P59. [lead]: T Rahwan, T Michalak, M Wooldridge, N Jennings (2012). "*Anytime Coalition Structure Generation in Multi-Agent Systems with Positive or Negative Externalities.*" **Artificial Intelligence (AIJ)**. 186, Pages 95--122. Publisher: Elsevier.

P60. [author]: E Elkind, T Rahwan, N Jennings (2012). "*Computational Coalition Formation.*" Chapter 8, **Multiagent Systems (2nd Edition)**. Pages 329—380. Publisher: The MIT press.

P61. [lead]: T Rahwan, T Michalak, N Jennings (2012). "*A Hybrid Algorithm for Coalition Structure Generation.*" In Proceedings of the 26th **AAAI Conference on Artificial Intelligence**, in Toronto, Canada. Acceptance rate 26%.

P62. [mentor]: P Szczepanski, T Michalak, T Rahwan (2012). "*A New Approach to Betweenness Centrality based on the Shapley Value.*" In Proceedings of the 11th International Conference on **Autonomous Agents and Multi-Agent Systems (AAMAS)** in Barcelona, Spain. Acceptance rate 20%.

P63. [author]: G Hines, T Rahwan, N Jennings (2012). "*An Anytime Algorithm for Finding the ϵ–Core in Nontransferable Utility Coalitional Games.*" In Proceedings of the 20th **European Conference on Artificial Intelligence (ECAI)** in Montpellier, France. Acceptance rate 28%.

P64. [lead]: T Rahwan, T Michalak, N Jennings (2011). "*Minimum Search to Establish Worst-Case Guarantees in Coalition Structure Generation.*" In Proceedings of the 22nd **International Joint Conference on Artificial Intelligence (IJCAI)** in Barcelona, Spain. Acceptance rate 17%.

P65. [lead]: T Rahwan, T Michalak, E Elkind, P Faliszewski, J Sroka, M Wooldridge, N Jennings (2011). "*Constrained Coalition Formation.*" In Proceedings of the 25th **AAAI Conference on Artificial Intelligence**, in San Francisco, USA. Acceptance rate 25%.

P66. [author]: T Michalak, T Rahwan, D Marciniak, M Szamotulski, N Jennings (2010). "*Computational Aspects of Extending the Shapley Value to Coalitional Games with Externalities.*" In Proceedings of the 19th **European Conference on Artificial Intelligence (ECAI)** in Lisbon, Portugal. Acceptance rate 20%.

P67. [author]: T Michalak, J Sroka, T Rahwan, M Wooldridge, P McBurney, N Jennings (2010). "*A distributed algorithm for anytime coalition structure generation.*" In Proceedings of the 9th International Conference on **Autonomous Agents and Multi-Agent Systems (AAMAS)** in Toronto, Canada, 1007-1014. Acceptance rate 24%.

P68. [author]: T Michalak, D Marciniak, M Szamotulski, T Rahwan, M Wooldridge, P McBurney, N Jennings (2010). "*A logic-based representation for coalitional games with externalities*." In Proceedings of the 9th International Conference on **Autonomous Agents and Multi-Agent Systems (AAMAS)** in Toronto, Canada, 125-132. Acceptance rate 24%.

P69. [lead]: T Rahwan, S Ramchurn, A Giovannucci, N Jennings (2009). "*An Anytime Algorithm for Optimal Coalition Structure Generation.*" **Journal of Artificial Intelligence Research (JAIR)**. 34, Pages 521--567. Publisher: AAAI (Association for the Advancement of Artificial Intelligence).

P70. [lead]: T Rahwan, T Michalak, N Jennings, M Wooldridge, P McBurney (2009). "*Coalition Structure Generation in Multi-Agent Systems with Positive and Negative Externalities.*" In Proceedings of the 21st **International Joint Conference on Artificial Intelligence (IJCAI)** in Pasadena, USA. Pages 257--263. Acceptance rate 26%.

P71. [author]: T Michalak, T Rahwan, J Sroka, A Dowell, M Wooldridge, P McBurney, N Jennings (2009). "*On Representing Coalitional Games with Externalities*." In Proceedings of the 10th **ACM conference on Electronic Commerce (ACM-EC)** in Stanford, USA. Pages 11--20. Acceptance rate 25%.

P72. [lead]: T Rahwan, N Jennings (2008). "*Coalition Structure Generation: Dynamic Programming Meets Anytime Optimization.*" In Proceedings of the 23rd **AAAI Conference on Artificial Intelligence**, in Chicago, USA. Pages 156--161. Acceptance rate 24%.

P73. [lead]: T Rahwan, N Jennings (2008). "*An Improved Dynamic Programming Algorithm for Coalition Structure Generation.*" In Proceedings of the 7th international conference on **Autonomous Agents and Multi-Agent Systems (AAMAS)** in Estoril, Portugal. Pages 1417--1420.

P74. [lead]: T Rahwan (2007). "*Algorithms for Coalition Formation in Multi-Agent Systems.*" Ph.D. Thesis. Published by the **British Informatics Society**, ISBN: 978-1906124144. *Winner of the British Computer Society's Distinguished Dissertation award, which annually recognizes the most outstanding Ph.D. thesis in the UK in Computer Science.*

P75. [lead]: T Rahwan, N Jennings (2007). "*An Algorithm for Distributing Coalitional Value Calculations among Cooperating Agents.*" **Artificial Intelligence (AIJ)**. 171 (8-9). Pages 535--567. Publisher: Elsevier.

P76. [lead]: T Rahwan, S Ramchurn, A Giovannucci, V D Dang, N Jennings (2007). "*Anytime Optimal Coalition Structure Generation.*" In Proceedings of the 22nd **AAAI Conference on Artificial Intelligence**, in Vancouver, Canada. Pages 1184--1190. Acceptance rate 27%.

P77. [lead]: T Rahwan, S Ramchurn, V Dang, N Jennings (2007) "*Near-Optimal Anytime Coalition Structure Generation.*" In Proceedings of the 20th **International Joint Conference on Artificial Intelligence (IJCAI)** in Hyderabad, India. Pages 2365--2371. Acceptance rate 16%.

P78. [lead]: T Rahwan, N Jennings (2005). "*Distributing Coalitional Value Calculations among Cooperating Agents.*" In Proceedings of the 20th **AAAI Conference on Artificial Intelligence**, in Pittsburgh, USA. Pages 152--157. Acceptance rate 18%.

P79. [lead]: T Rahwan, T Rahwan, I Rahwan, R Ashri (2004). "*Agent-based Support for Mobile Users Using AgentSpeak(L).*" In volume 3030 of **Agent-Oriented Information Systems**, Springer-Verlag, Berlin, Germany. Pages 45--60.

Invited Talks

- **October 2022: MIT, Boston**
  - Invited by Prof. Alex 'Sandy' Pentland, director of MIT Connection Science, to give a talk titled: "*A Global Perspective of Scientific Publications.*"

- **October 2022: Yale, New Haven**
  - Invited by Prof. Nicholas Christakis, director of the Human Nature Lab at Yale University, to give a talk titled: "*Hiding from AI.*"

- **March 2022: Dubai Expo, UAE**
  - I gave an invited talk at the conference "Humanities and the Rise of AI - Implications of Cultural and Societal Engineering" at Luxemburg Pavilion, Expo 2020. My talk was titled: "*Cooperating with Machines.*"

- **August 2021: Eurasia Summit**
  - I gave an invited talk at the Eurasian Summit for Models of Society, 2021. The talk I gave was under the title: "*Hiding Communities and Relationships in a Social Network.*"

- **August 2015: Yokohama, Japan**
  - I gave an invited talk at the International Workshop on Market Design Technologies for Sustainable Development, at Yokohama, Japan, to give a talk titled: "*Measuring Synergy in Coalitions.*"

Awards

- **AI's 10 to Watch**
  - I was selected by the IEEE Computer Society as one of *AI's 10 to Watch*. The list is published every two years by IEEE Intelligent Systems, in recognition of the ***10 most promising, young Artificial-Intelligent (AI) scientists in the world***; the winners are described as the "*stars who promise to be the leaders of the field.*"

- **Distinguished Dissertation Award**
  - I received the British Computer Society's *Distinguished Dissertation Award*, which annually recognizes **the most outstanding Ph.D. thesis in the UK in Computer Science**.

- **Dean Award for Early Career Researchers**

- I was selected by the Faculty of Physical Sciences and Engineering (at the University of Southampton, UK) as a recipient of the *"Dean Awards for Early Career Researchers."* I received the award under the *"Scientific Research & Publications"* category.

- **Overseas Research Scholarship (ORS) for a Ph.D.**
    - Awarded by the School of Electronics & Computer Science at the University of Southampton in the United Kingdom. The school was ranked 2nd in the UK for the quality of its research according to the *2008 Research Assessment Exercise (RAE).*

- **Presidential Award for Academic Achievement**
    - Convened by the Syrian Ministry of Higher Education and awarded to *the student ranked 1st in each department* at Syrian universities.

Media Coverage

- Largest-ever study of journal editors highlights 'self-publication' and gender gap, **Nature** | 2023

- Journals publish disproportionate number of papers by their editors, **New Scientist** | 2023

- Examining equality among editors, **Nature Middle East** | January 17, 2023

- Concern over high self-publication rates among journal editors, **Times Higher Education** | 2023

- Self-publishing is common among academic-journal editors, **Nature News & Views** | 2023

- Journal editors (mainly men) often self-publish, **University World News** | January 28, 2023

- Researchers find persistent gender gap among scientific editors, **Khaleej Times** | 2023

- Lightening the load to narrow the digital divide, **Nature Middle East** | January 13, 2023

- NYUAD researchers find persistent gender gap among scientific editors, **EurekAlert** | 2023

- Ethics, efficiency, and artificial intelligence, **Boston Globe** | January 30, 2020

- People Don't Learn to Trust Bots. **Scientific American** | February 1, 2020

- Weaponised Disinformation Could Unleash City-Wide Blackouts, **Science Alert** | August 22, 2020

- Hackers could take down the power grid, **Fast Company** | August 21, 2020

- Human bias burdens bots. **Nature Middle East** | November 22, 2019

- Can Artificial Intelligence Increase Our Morality? **Psychology Today** | December 9, 2019

- The UAE minister seeking to avert an AI apocalypse. **WIRED** | December 29, 2019

- Robots can work better with concealed identity: Survey. **Khaleej Times** | November 15, 2019

- Bots Outperform Humans if They Impersonate Us. **Scientific American** | December 11, 2019

- How do machines think? **New Statesman** | December 11, 2019

- Cómo engañar al algoritmo y evitar que Facebook sepa a quién conoces. **El País** | Sep 19, 2019

- These labs are remarkably diverse — here's why they're winning at science. **Nature** | June 6, 2018

- Ethnic diversity boosts scientific impact. **Physics World** | March 21, 2018

- How to Hide Within a Social Network. **Motherboard** | January 30, 2018

- AI's 10 to Watch. **IEEE Intelligent Systems** | January/February 2011

Research Grants

Project title: "*Developing Coalition Formation Algorithms and Solution Concepts, with Applications to Virtual Power Plants.*"
- **Duration:** Sep-2014 till Sep-2016.
- **Budget**: $280,000.
- **My role:** Principal Investigator.
- **Sponsor:** Masdar Institute of Science and Technology.

Project title: "*Strategic Social Network Analysis to Enhance Security and Privacy.*"
- **Duration:** July-2018 till June-2021.
- **Budget:** $670,000.
- **My role:** Principal Investigator.
- **Sponsor:** Khalifa University of Science and Technology.

Teaching

2022
- Spring: **Data Structures**, taught at NYU Abu Dhabi.
- Fall: **Data Structures**, taught at NYU Abu Dhabi.

2021
- Spring: **Computational Social Science**, taught at NYU Abu Dhabi.
- Fall: **Computational Social Science**, taught at NYU Abu Dhabi.

2020
- Spring: **Computational Social Science**, taught at NYU Abu Dhabi.
- Fall: **Data Structures**, taught at NYU Abu Dhabi.

2019
- Fall: **Data Structures**, taught at NYU Abu Dhabi.

2018
- Spring: **Machine Learning**, taught at Masdar Institute, Khalifa University.
- Spring: **Multimodal Data mining**, taught at Masdar Institute, Khalifa University.
- Spring: **Sustainable Energy**, taught at Masdar Institute, Khalifa University.

2017
- Spring: **Machine Learning**, taught at Masdar Institute, Khalifa University.
- Spring: **Topics in Computational Social Science**, at Masdar Institute, Khalifa University.

2016
- Spring: **Data Mining**, taught at Masdar Institute, Khalifa University.
- Fall: **Multimodal Data mining**, taught at Masdar Institute, Khalifa University.

- Fall: **Sustainable Energy**, taught at Masdar Institute, Khalifa University.

2015
- Spring: **Topics in Computational Social Science**, at Masdar Institute, Khalifa University.
- Fall: **Sustainable Energy**, taught at Masdar Institute, Khalifa University.
- Fall: **Multimodal Data mining**, taught at Masdar Institute, Khalifa University.

2014
- Spring: **Topics in Computational Social Science** at Masdar Institute, Khalifa University.
- Spring: **Sustainable Energy**, taught at Masdar Institute, Khalifa University.
- Fall: **Sustainable Energy**, taught at Masdar Institute, Khalifa University.

Student Supervision

Ph.D. students

1. Fengyan Liu.
   - Ph.D. student, Computer Science department, New York University.
   - My role: Committee chair.
   - Expected graduation year: 2024.
   - Notes: Fengyan's first paper just got accepted into Nature Human Behaviour (impact factor = 24). His second paper is currently under the 2nd round of review at PNAS (Proceedings of the National Academy of Sciences; impact factor = 13).

2. Bedoor AlShebli
   - Ph.D. student, Computer Science department, Masdar Institute, Khalifa University.
   - My role: Secondary advisor (with Dr. Wei Lee Woon).
   - Graduation year: 2018.
   - Notes: Bedoor's Ph.D. findings were published in Nature Communications (impact factor = 18). She was a postdoc in my lab for two years, before joining New York University Abu Dhabi as an Assistant Professor of Computational Social Science.

3. Mayada Oudah
   - Ph.D. student, Computer Science department, Masdar Institute, Khalifa University.
   - My role: Committee chair.
   - Graduation year: 2017.
   - Notes: Mayada is now a postdoctoral associate in the Social Science Experimental Lab at New York University Abu Dhabi, UAE.

4. Fatimah Ishowo-Oloko
   - Ph.D. student, Computer Science department, Masdar Institute, Khalifa University.
   - My role: Committee chair.
   - Graduation year: 2017.
   - Notes: Fatimah's Ph.D. results were published in Nature Machine Intelligence (impact factor = 26), and made the cover of the November issue, 2019.

5. Sasan Maleki
   - Ph.D. student, School of Electronics & Computer Science, University of Southampton, UK.
   - My role: Secondary advisor (with Prof. Alex Rogers).
   - Graduation year: 2015

MS.C. students

1. Chien Chen. Computer Science department, Masdar Institute, Khalifa University.
2. Jwen Fai Low. Computer Science department, Masdar Institute, Khalifa University.
3. Maryam Al Mehrezi. Computer Science department, Masdar Institute, Khalifa University.
4. Sarah Bamatraf. Computer Science department, Masdar Institute, Khalifa University.
5. Pai-Ju Chang. Computer Science department, Masdar Institute, Khalifa University.

Capstone Projects (main advisor)

Below are capstone projects at New York University Abu Dhabi for which I served as main advisor.

Project 1:
- o **Title:** Anomaly Detection Using AutoEncoders: The Advanced Persistent Threats Case.
- o **Student:** Ngoc Nhu Hoang.
- o **Duration:** from Feb 2022 to May 2023.

Project 2:
- o **Title:** Investigating the Relationship between Citations and the Contributions of Algorithm Solvers.
- o **Student:** Desmond Ofori Atta.
- o **Duration:** from Feb 2022 to May 2023.

Project 3:
- o **Title:** Ethnic Diversity in Editorial Boards.
- o **Student:** Mathilde Simoni.
- o **Duration:** from Feb 2022 to May 2023.

Project 4:
- o **Title:** The Impact of Becoming an Editor.
- o **Student:** Vee Nis Ling.
- o **Duration:** from Feb 2022 to May 2023.

Project 5:
- o **Title:** Revisiting YouTube Algorithm's Allegation of User Radicalization.
- o **Student:** Sangjin David Lee.
- o **Duration:** from Feb 2021 to May 2022.

Project 6:
- o **Title:** Protecting Sensitive Information from Probing AI.
- o **Student:** Nour Abdelmoneim and Jakub Niewiadomski.
- o **Duration:** from Feb 2021 to May 2022.

Project 7:
- o **Title:** Ageism in Academia: The Effects of Mean Academic Age of Teams.
- o **Student:** Andriy Lunin.
- o **Duration:** from Feb 2021 to May 2022.

Project 8:
- o **Title:** Revisiting the Uncanny Valley using Generative Adversarial Networks.
- o **Student:** Abdullah Zameek and Navya Suri.
- o **Duration:** from Feb 2020 to May 2021.

Project 9:
- o **Title:** Extending the Dollar Auction: The Power of AI in Shaping Conflict.
- o **Student:** Domnica Dzitac.
- o **Duration:** from Feb 2020 to May 2021.

Project 10:
- o **Title:** Public Cooperation in a Human-Bot Society.

- o **Student:** Julie Xi-Xuan Liu.
- o **Duration:** from Feb 2020 to May 2021.

Project 11:
- o **Title:** The Effect of Air Pollution and Republican Vote share on Police Performance and Racial Bias.
- o **Student:** Teona Ristova.
- o **Duration:** from Feb 2019 to May 2020.

Project 12:
- o **Title:** AI Overcoming Human Bias: Eliciting Bias in the Public Goods Game.
- o **Student:** Russell Coke and Robert Gordon.
- o **Duration:** from Feb 2019 to May 2020.

Project 13:
- o **Title:** Temptation of Citation: Quantifying Editor's Potential Misconduct in Academic Journals.
- o **Student:** Fengyuan Liu.
- o **Duration:** from Feb 2019 to May 2020.

Internal Service

- **Ph.D. Programme Coordinator**, from Sept-2019 to present day.

- Chair of the **Visiting Faculty Search Committee**, from Jan-2022 to present day.

- Chair of the **Lecturer Search Committee**, from Oct-2019 to May-2021.

- Head of the **Undergraduate Curriculum Committee**, from Nov-2017 to Nov-2018. Responsible for developing curricula and policies for undergraduate studies.

- Member of the **Graduate Selection Committee** for MSc students in the Department of Computer Science, from May-2017 to Nov-2018. Responsibilities included evaluating every MSc applicant to the Computing and Information Science programme.

- Member of the **Faculty Recruitment and Advancement Committee**, from Nov-2015 to Nov-2018. Responsibilities included evaluating every applicant to a faculty position in the university.

- Member of the **Ph.D. Admissions Committee** from Feb-2014 to Feb-2016. Responsibilities included evaluating every Ph.D. applicant to the entire university on a weekly basis.

Community Service

Editor:
- I was nominated by Co-Editors in Chief of Artificial Intelligence Journal (**AIJ**), Patrick Doherty and Sylvie Thiebaux, to serve as an Editor of AIJ from January 1st, 2023 till December 31, 2026; nomination pending approval.

Reviewer:
1. Reviewer: ***Nature Communications***, Nature Publishing Group (2022).

2. Reviewer: ***Nature Machine Intelligence***, Nature Publishing Group (2020).

3. Reviewer: ***Nature Human Behaviour***, Nature Publishing Group (2018, 2023).

4. Reviewer: ***Science Advances***, American Association for the Advancement of Science (2021).

5. Reviewer: *International World Wide Web (**WWW**) Conference* (2021).

6. PC member: **ICSSI**---International Conference on Science of Science and Innovation (2023).

7. Reviewer: *UAE GSRC---UAE Graduate Students Research Conference* (2022).

8. Reviewer: *Artificial Intelligence (AIJ),* Elsevier (2008, 2010, 2011, 2012, 2013, 2014, 2017, 2018).

9. Reviewer: *Constraints*, Springer (2018).

10. Reviewer: *Journal of Autonomous Agents and Multi-Agent Systems (JAAMAS)*, Springer (2007, 2009, 2010, 2014, 2016).

11. Reviewer: *European Journal of Operational Research,* Elsevier (2016).

12. Reviewer: *ACM Computing Surveys*, published by ACM (2014).

13. Reviewer: *Journal of Artificial Intelligence Research (JAIR),* published by AAAI (2013).

14. Reviewer: *Engineering Applications of Artificial Intelligence (EAAI),* Elsevier (2012).

15. Reviewer: *The Knowledge Engineering Review*, Cambridge University Press (2011).

16. PC member: *The **AAAI** conference on Artificial Intelligence* (2010, 2014, 2017).

17. PC member: *The International Joint Conference on Artificial Intelligence (IJCAI)* (2015).

18. PC member: the *European Conference on Artificial Intelligence (ECAI)* (2012, 2014).

19. PC member: *IEEE International Conference on **Robotics and Automation** (ICRA)* (2012).

20. PC member: *Int. conference on Autonomous Agents and Multi-Agent Systems (AAMAS)* (2009, 2010).

21. PC member: *Cooperative Games and Multiagent Systems (CoopMAS)* (2010, 2014, 2015, 2017).

22. PC member: *Optimisation in Multi-Agent Systems (OptMas)* (2009, 2010, 2012, 2014, 2015).

23. Reviewer: *IEEE International Conference on **Intelligent Robots and Systems** (IROS)* (2011).

24. Reviewer: *The international workshop on Computational Social Choice (ComSoc)* (2008).

Contact

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