

## Handout 1: Resources in Agents and Multiagent Systems

January 14, 2020

### 1. Introduction

This resource document is by no means complete. It consists of two categories: (1) papers related to agents and multiagent systems, and some distributed intelligent systems, suitable for the class, and (2) some relevant journals publishing agent-related papers.

### 2. Papers

#### Multiagent Systems and Models

Brennan, R. W. (2007). Toward Real-Time Distributed Intelligent Control: A Survey of Research Themes and Applications, *37*(5):744-764.

Helleboogh, A., G. Vizzari, A. Uhrmacher, and F. Michel (2007). Modeling Dynamic Environments in Multi-Agent Simulation, *Journal of Autonomous Agents and Multiagent Systems*, **14**:87-116. (hellebooghetal2007)

Horling, B. and V. Lesser (2005). A Survey of Multi-Agent Organizational Paradigms, *Knowledge Engineering Review*, **19**(4):281-316. (horlinglesser2005.pdf)

Huhns, M. N. and M. P. Singh (1999). A Multiagent Treatment of Agenthood, *Applied Artificial Intelligence*, **13**(1-2):3-10. (hughsingh1999.pdf)

Padgham, L. and P. Lambrix (2005). Formalisations of Capabilities for BDI-Agents, *Journal of Autonomous Agents and Multiagent Systems*, **10**:249-271. (padghamlambrix2005)

Pynadath, D. and M. Tambe (2002). The Communicative Multiagent Team Decision Problem: Analyzing Teamwork Theories and Models, *Journal of Artificial Intelligence Research*, **1**(6):389-423. (pynadathtambe2002.pdf)

Valckenaers, P., J. Sauter, C. Sierra, and J. A. Rodriguez-Aguilar (2007). Applications and Environments for Multi-Agent Systems, *Journal of Autonomous Agents and Multiagent Systems*, **14**:61-85. (valckenaersetal2007)

#### Multiagent Environments

Platon, E., M. Mamei, N. Sabouret, S. Honiden, and H. V. D. Parunak (2006). Mechanisms for Environments in Multiagent Systems: Survey and Opportunities, **14**(1):31-47.

Viroli, M., T. Holvoet, A. Ricci, K. Schelfhout, and F. Zambonelli (2007). Infrastructures for the Environment of Multiagent systems, *Journal of Autonomous Agents and Multiagent Systems*, **14**:49-60.

Halpern, J. Y. and K. R. O'Neill (2008). Secrecy in Multiagent Systems, *ACM Transactions on Information and System Security*, **12**(1):1-46.

#### Teamwork

Crawford, E. and M. Veloso (2007). An Experts Approach to Strategy Selection in Multiagent Meeting Scheduling, *Journal of Autonomous Agents and Multiagent Systems*, **15**:5-28. (crawfordveloso2007)

Dunne, P. E., M. Wooldridge, and M. Laurence (2005). The Complexity of Contract Negotiation, *Artificial Intelligence*, **164**(1-2):23-46. (dunneetal2005.pdf)

- Dolgov, D. A. and E. H. Durfee (2006) Resource Allocation Among Agents with MDP-Induced Preferences, *Journal of Artificial Intelligence Research*, **27**:505-549. (dolgovdurfee2006.pdf)
- Etuk, A., T. J. Norman, M. Sensoy, and M. Srivatsa (2017). How to Trust a Few among Many, *Journal of Autonomous Agents and Multiagent Systems*, **31**:531-560.
- Faratin, P., C. Sierra, and N. R. Jennings (1998). Negotiation Decision Functions for Autonomous Agents, *Int. Journal of Robotics and Autonomous Systems*, **24**(3-4):159-182. (faratinetal1998.pdf)
- Faratin, P., C. Sierra, and N. R. Jennings (2002). Using Similarity Criteria to Make Issue Trade-Offs in Automated Negotiations, *Artificial Intelligence*, **142**:205-237. (faratinetal2002.pdf)
- Grosz, B. and S. Kraus (1996). Collaborative plans for complex group action, *Artificial Intelligence*, **86**(2):269-357. (groszkraus1996.pdf)
- Grosz, B. J. and S. Kraus (1998). The evolution of SharedPlans, in Rao, A. and M. Wooldridge (eds.) *Foundations and Theories of Rational Agency*, Kluwer Academic Publishing. (groszkraus1998.pdf)
- Grosz, B. J., S. Kraus, D. G. Sullivan, and S. Das (2002). The Influence of Social Norms and Social Consciousness on Intention Reconciliation, *Artificial Intelligence*, **142**:147-177. (groszetal2002.pdf)
- Huynh, T. D., N. R. Jennings, and N. R. Shadbolt (2006). An Integrated Trust and Reputation Model for Open Multi-Agent Systems, *Journal of Autonomous Agents and Multiagent Systems*, **13**:119-154. (huynhetal2006.pdf)
- ILany, L. and Y. Gal (2016). Algorithm Selection in Bilateral Negotiation, *Journal of Autonomous Agents and Multiagent Systems*, **30**:697-723.
- Jøsang, A., R. Ismail, C. Boyd (2005). A Survey of Trust and Reputation Systems for Online Service Provision, *Decision Support Systems*, **43**(2):618-644.
- Li, C., J. A. Giampapa, and K. Sycara (2006). Bilateral Negotiation Decisions with Uncertain Dynamic Outside Options, *IEEE Transactions on Systems, Man, and Cybernetics, Part C: Special Issue on Game-Theoretic Analysis and Stochastic Simulation of Negotiation Agents*, **36**(1). (lietal2006.pdf)
- Nair, R. and M. Tambe (2005). Hybrid BDI-POMDP Framework for Multiagent Teaming, *Journal of Artificial Intelligence Research*, **23**(4):367-420. (nairtambe2005.pdf)
- Parsons, S., C. Sierra and N. R. Jennings (1998). Agents that Reason and Negotiate by Arguing, *Journal of Logic and Computation*, **8**(3):261-292. (parsonsetal1998.pdf)
- Raja, A. and V. Lesser (2007). A Framework for Meta-Level Control in Multi-Agent Systems, to appear in *Journal of Autonomous Agents and Multiagent Systems*. (rajalesser2007.pdf)
- Rochlin, I., Y. Auomann, D. Sarne, and L. Golosman (2016). Efficiency and Fairness in Team Search with Self-Interested Agents, *Journal of Autonomous Agents and Multiagent Systems*, **30**:5260552.
- Ros, R. and C. Sierra (2006). A Negotiation Meta Strategy Combining Trade-Off and Concession Moves, *Journal of Autonomous Agents and Multiagent Systems*, **12**:163-181. (rossierra2006.pdf)
- Rosenfeld, A. I. Zuckerman, E. Segal-Halevi, O. Drein, S. Kraus (2015). NegoChat-A: a Chat-Based Negotiation Agent with Bounded Rationality, *Journal of Autonomous Agents and Multiagent Systems*, **30**(1):60-81.
- Sandip, S. (2002). Believing Others: Pros and Cons, *Artificial Intelligence*, **142**:179-203 (sandip2002.pdf)
- Soh, L.-K. and C. Tsatsoulis (2005). A Real-Time Negotiation Model and A Multi-Agent Sensor Network Implementation, *Journal of Autonomous Agents and Multiagent Systems*, **11**:215-271. (sohtsatsoulis2005.pdf)

Stone, P., M. L. Littman, S. Singh, and M. Kearns (2001). ATTac-2000: An Adaptive Autonomous Bidding Agent, *Journal of Artificial Intelligence Research*, **15**:189-206.

van der Hoek, W. and M. Wooldridge (2005). On the Logic of Cooperation and Propositional Control, *Artificial Intelligence*, 164(1-2):81-119. (vanderhoekwooldridge2005.pdf)

Zhang, X., V. Lesser, and R. Podorozhny (2005). Multi-Dimensional, MultiStep Negotiation for Task Allocation in a Cooperative System, *Journal of Autonomous Agents and Multiagent Systems*, **10**:5-40. (zhangetal2005.pdf)

## Learning

Banerjee, B. and J. Peng (2007). Generalized Multiagent Learning with Performance Bound, to appear in *Journal of Autonomous Agents and Multiagent System*. (banerjeepeng2007)

Banerjee, B., S. Sen, and S. Saha (2004). On-Policy Concurrent Reinforcement Learning, *Journal of Experimental and Theoretical Artificial Intelligence*, **16**(4):245-260. (banerjeeetal2004.pdf)

Bowling, M. and M. Veloso (2002). Multiagent Learning Using a Variable Learning Rate, *Artificial Intelligence*, **136**:215-250. (bowlingveloso2002.pdf)

Buffet, O., A. Dutech, and F. Charpillet (2007). Shaping Multi-Agent Systems with Gradient Reinforcement Learning, to appear in *Journal of Autonomous Agents and Multiagent Systems*. (buffetetal2007.pdf)

Bulka, B., M. Gaston, and M. desJardins (2007). Local Strategy Learning in Networked Multi-Agent Team Formation, *Journal of Autonomous Agents and Multiagent Systems*, **15**:29-45. (bulkaetal2007.pdf)

Enembreck, F. and J.-P. Barthés (2005). ELA—A New Approach for Learning Agents, *Journal of Autonomous Agents and Multiagent Systems*, **10**:215-248. (enembreckbarthes2005.pdf)

Ghavamzadeh, M., S. Mahadevan, and R. Makar (2006). Hierarchical Multi-Agent Reinforcement Learning, *Journal of Autonomous Agents and Multiagent Systems*, **13**:197-229. (ghavamzadehetal2006.pdf)

Melo, F. S. and A. Sardinha (2016). Ad Hoc Teamwork by Learning Teammates' Task, *Journal of Autonomous Agents and Multiagent Systems*, **30**:175-219.

Panait, L. and S. Luke (2005). Cooperative Multi-Agent Learning: The State of the Art, *Journal of Autonomous Agents and Multiagent Systems*, **11**:387-434. (panaitluke2005.pdf)

Plaza, E. and S. Ontañón (2006). Learning Collaboration Strategies for Committees of Learning Agents, *Journal of Autonomous Agents and Multiagent Systems*, **13**:429-461. (plazaontanon2006.pdf)

Stone, P., R. S. Sutton, and G. Kuhlmann (2005). Reinforcement Learning for RoboCup-Soccer Keepaway, *Adaptive Behavior*, **13**(3):165-188. (stoneetal2005.pdf)

Shoham, Y., R. Powers, and T. Grenager (2007). If Multi-Agent Learning is the Answer, What is the Question?, *Artificial Intelligence*, **171**(1):365-377.

Vidal, J. M. and E. H. Durfee (2003). Predicting the Expected Behavior of Agents that Learn about Agents: The CLRI Framework, *Autonomous Agents and Multi-Agent Systems*, **6**(1):77-107. (vidaldurfee2003.pdf)

## Real-Time

Stone, P. and M. Veloso (1999). Task Decomposition, Dynamic Role Assignment, and Low-Bandwidth Communication for Real-Time Strategic Teamwork, *Artificial Intelligence*, **100**(2):241-273. (stoneveloso1999.ps)

Bazzan, A. L. C. (2005). A Distributed Approach for Coordination of Traffic Signal Agents, *Journal of Autonomous Agents and Multiagent Systems*, **10**:131-164. (bazzan2005.pdf)

## Monitoring

Kaminka, G. A., D. V. Pynadath, and M. Tambe (2002). Monitoring Teams by Overhearing: A Multi-Agent Plan-Recognition Approach, *Journal of Artificial Intelligence Research*, **17**:83-135. (kaminkaetal2002.pdf)

Leppanen, T., J. A. Lacasia, Y. Tobe, K. Sezaki, and J. Riekkki (2017). Mobile Crowdsensing with Mobile Agents, *Journal of Autonomous Agents and Multiagent Systems*, **31**:1-35.

Monticino, M., M. Acevedo, B. Callicott, T. Cogdill, and C. Lindquist (2007). Coupled Human and Natural Systems: A Multi-Agent-Based Approach, *Environmental Modelling and Software*, **22**:656-663.

Nair, R., M. Tambe, S. Marsella, and R. Raines (2004). Automated Assistants for Analyzing Team Behaviors, *Journal of Autonomous Agents and Multiagent Systems*, **8**(1):69-111. (nairetal2004.pdf)

Wilkins, D. E., T. J. Lee, and P. Berry (2003). Interactive Execution Monitoring of Agent Teams, *Journal of Artificial Intelligence Research*, **18**:217-261. (wilkinsetal2003.pdf)

## Robotics

Farinelli, A., M. M. Raeissi, N. Marchi, N. Brooks, and P. Scerri (2017). Interacting with Team Oriented Plans in Multi-Robot Systems, *Journal of Autonomous Agents and Multiagent Systems*, **31**:332-361.

Kober, J; Bagnell, D.; Peters, J. (2013). Reinforcement Learning in Robotics: A Survey, *International Journal of Robotics Research*, **32**(11), pp. 1236-1272.

Deisenroth, M.; Neumann, G; Peters, J. (2013). A Survey on Policy Search for Robotics, *Foundations and Trends in Robotics*, **21**, pp. 388-403.

Nguyen-Tuong, D.; Peters, J. (2011). Model Learning in Robotics: a Survey, *Cognitive Processing*, **12**(4), pp.319-340.

## Human-Agent Collaborations

Azaria, A., A. Rochardson, and A. Rosenfeld (2016). Autonomous Agents and Human Cultures in the Trust-Revenge Game, *Journal of Autonomous Agents and Multiagent Systems*, **30**(1):486-505.

Hajaj, C., N. Hazon, and D. Sarne (2017). Enhancing Comparison Shopping Agents through Ordering and Gradual Information Disclosure, *Journal of Autonomous Agents and Multiagent Systems*, **31**:696-714.

Ramchum, S. D., F. Wu, W. Jiang, J. E. Fischer, S. Reece, S. Roberts, T. Rodden, C. Greenhalgh, and N. R. Jennings (2015). Human-Agent Collaboration for Disaster Response, *Journal of Autonomous Agents and Multiagent Systems*, **30**(1):82-111.

Sklar, E. I., S. Parsons, Z. Li, J. Salvit, S. Perumal, H. Wall, and J. Mangels (2015). Evaluation of a Trust-Modulated Argumentation-Based Interactive Decision-Making Tool, *Journal of Autonomous Agents and Multiagent Systems*, **30**(1):136-173.

Sequeira, P., F. S. Melo, and A. Paiva (2015). Emergence of Emotional Appraisal Signals in Reinforcement Learning Agents, *Journal of Autonomous Agents and Multiagent Systems*, **29**(4):537-568.

## Simulation

Chliaoutakis, A. and G. Chalkiadakis (2016). Agent-Based Modeling of Ancient Societies and Their Organization Structure, *Journal of Autonomous Agents and Multiagent Systems*, **30**:1072-1116.

Ksontini, F., R. Mandiau, Z. Guessoum, and S. Espie (2015). Affordance-Based Agent Model for Road Traffic Simulation, *Journal of Autonomous Agents and Multiagent Systems*, **29**(5):821-849.

Martinez-Gil, F., M. Lozano, and F. Fernandez (2015). Strategies for Simulating Pedestrian Navigation with Multiple Reinforcement Learning Agents, *Journal of Autonomous Agents and Multiagent Systems*, **29**(1):98-130.

Zhang, H., Y. Vorobeychik, J. Letchford, and K. Lakkaraju (2016). Data-Driven Agent-Based Modeling, with Application to Rooftop Solar Adoption, *Journal of Autonomous Agents and Multiagent Systems*, **30**:1023-1049.

Zhong, J., W. Cai, L. Luo, and M. Zhao (2016). Learning Behavior Patterns from Video for Agent-Based Crowd Modeling and Simulation, *Journal of Autonomous Agents and Multiagent Systems*, **30**:990-1019.

#### **4. Journals**

*Journal of Autonomous Agents and Multiagent Systems*

*Journal of Artificial Intelligent Research*

*IEEE Transactions on Systems, Man, and Cybernetics*

*Web Intelligence and Agent Systems*

*Applied Artificial Intelligence Journal*

*Artificial Intelligence*

*The Knowledge Engineering Review*

*International Journal of Human-Computer Studies*

*Machine Learning*

*Communication of ACM*

*AI Magazine*