Honours Project Report

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IMPLEMENTATIONS

1. Currently doing further investigation of the paper *Simultaneously Learning and Advising in Multiagent Reinforcement Learning.* Trying to introduce a confidence measure when heterogeneous agents with diverse and variable objectives are learning together in IITM with Dr. Balaraman Ravindran.
2. Implemented multiple-lp problem in NEOS server from **GRANDE** algorithm.
3. Implemented **DOBBS** algorithm.

Following is the list of courses that I have done and the papers that I have read.

Reinforcement Learning -

1. Reinforcement Learning: A Survey
2. **Playing Atari with Deep Reinforcement Learning**
3. Generalized Model Learning for Reinforcement Learning in Factored Domains
4. TEXPLORE: Real-Time Sample-Efficient Reinforcement Learning for Robots
5. Intrinsically motivated model learning for developing curious robots
6. Using Transfer Learning to Speed-Up Reinforcement Learning: A Cased-Based Approach
7. Watkin's Q-Learning
8. Double Q-Learning
9. Deep Double Q-Learning

10. Multiagent Cooperation and Competition with Deep Reinforcement Learning
11. Solving Water-world With Decentralized Reinforcement Learning
12. Exploration: A Study of Count-Based Exploration for Deep Reinforcement Learning
13. Horde: A Scalable Real-time Architecture for Learning Knowledge from Unsupervised Sensorimotor Interaction
14. Simultaneously Learning and Advising in Multiagent Reinforcement Learning
15. Speeding up Tabular Reinforcement Learning Using State-Action Similarities
16. Count-Based Exploration in Feature Space for Reinforcement Learning
17. Prioritized Experience Replay
18. Policy Gradient
19. REINFORCE Algorithm
20. Actor Critic Algorithms
21. Source Task for Curriculum Learning
22. Autonomous Task Sequencing for Customized Curriculum Design in Reinforcement Learning.

Research in IITM with Dr. Balaraman Ravindran

1. Dynamic Action Repetition For Deep Reinforcement Learning
2. Autonomous Curriculum Tree Generation for Reinforcement Learning .
3. Attend, Adapt, and Transfer: Attentive Deep Architecture for Adaptive Transfer from Multiple Sources in the Same Domain
4. Imitation Learning: A Survey
5. Recent Advances in Hierarchical RL
6. Multi-Agent Reinforcement Learning: Independent vs. Cooperative Agents (1993)

7. Accelerating multi-agent reinforcement learning with dynamic co-learning
8. Generative Adversarial Networks
9. Generative Adversarial Imitation Learning
10. 3rd Person Imitation Learning
11. Transfer learning across heterogeneous robots with action sequence mapping

Game Theory

1. PROTECT: An Application of Computational Game Theory for the Security of the Ports of the United States.
2. A Robust Approach to Addressing Human Adversaries in Security Games
3. Deployed ARMOR Protection: The Application of a Game Theoretic Model for Security at the Los Angeles International Airport
4. PAWS: Game Theory Based Protection Assistant for Wildlife Security
5. Towards Addressing Challenges in Green Security Games in the Wild
6. Adaptive resource allocation for wildlife protection against illegal poachers
7. Deploying PAWS in combat Poaching: Game theoretic Patrolling in areas with complex terrains
8. Designing better Strategies against human adversaries in Network Security games
9. Computing optimal strategy to commit to
10. To Trust or Not: a security signaling game between service provider and client
11. Game theory in cooperative communication - Survey
12. Deception based game theoretic approach to mitigate DOS attacks
13. DOBBS

14. A repeated game approach for analyzing the collusion on selective forwarding in multihop wireless networks
15. A game theoretic approach to IP ADDRESS randomization to Decoy-based Cyber defence

Submodularity

1. Game theoretic resource allocation for malicious packet detection in computer networks(GRANDE)
2. Submodular Function Maximization Andreas Krause (ETH Zurich) Daniel Golovin (Google)
3. Submodularity and Optimization -- Jeff Bilmes Online Video Course
4. Near optimal multi-application allocation in shared sensor networks
5. Non monotone submodular maximization under matroid and knapsack constraint - Second half
6. Maximizing the spread of influence through a social network
7. Submodular game for distributed application allocation in shared sensor networks

Negotiation

1. Opponent Modelling in Automated Multi-Issue Negotiation Using Bayesian Learning