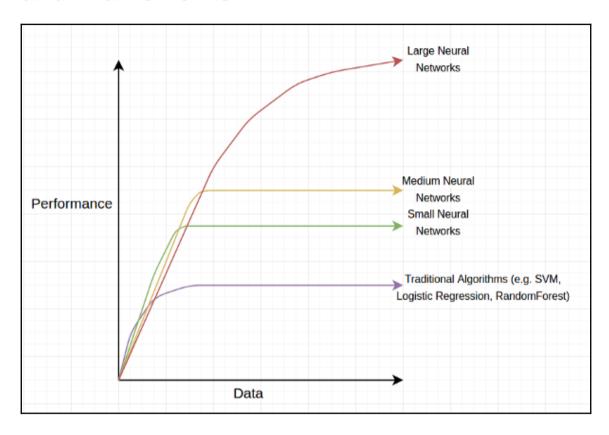
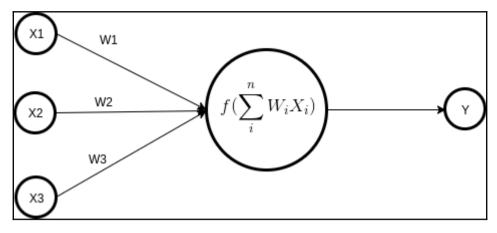
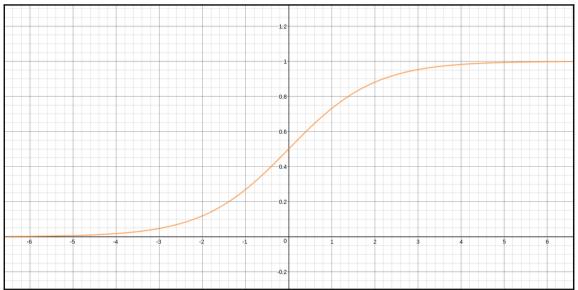
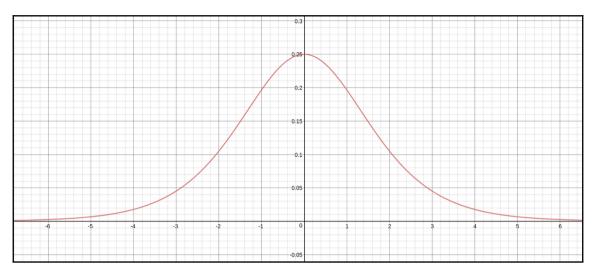
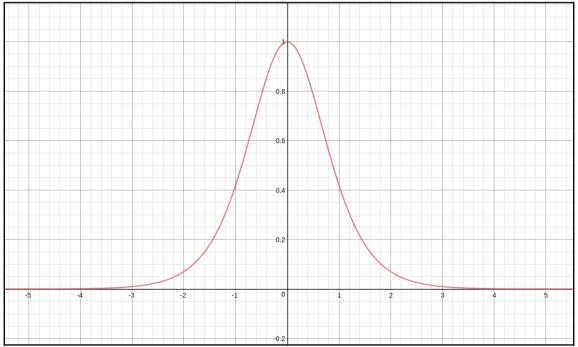
Chapter 1: Deep Learning – Architectures and Frameworks

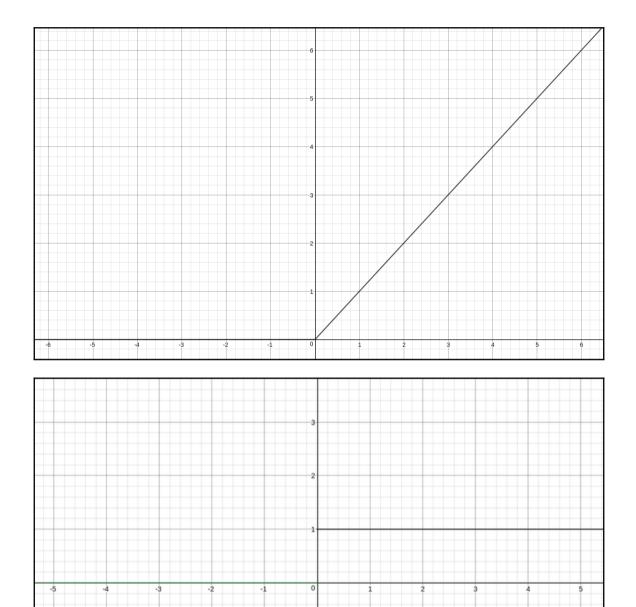


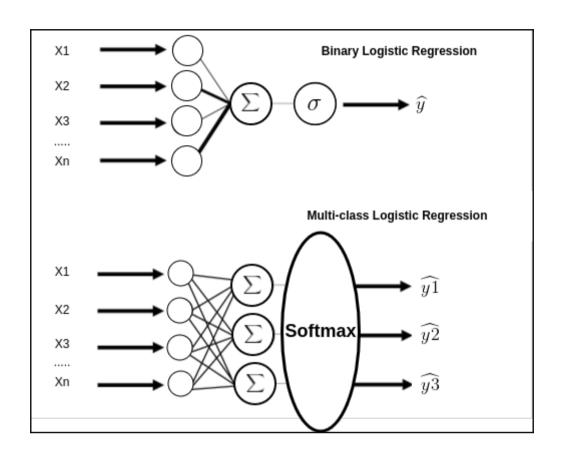


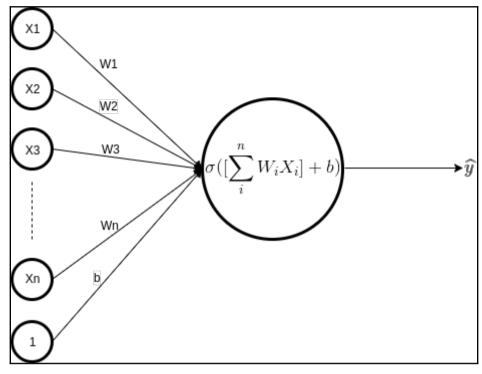


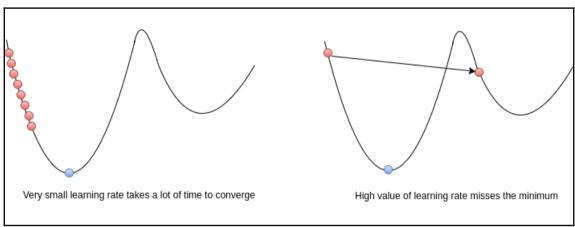


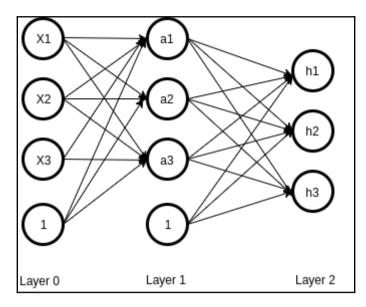


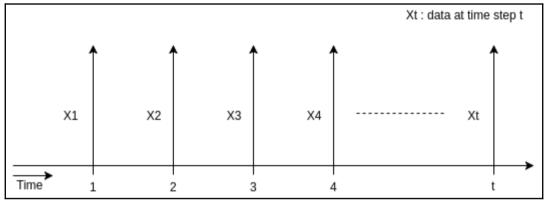


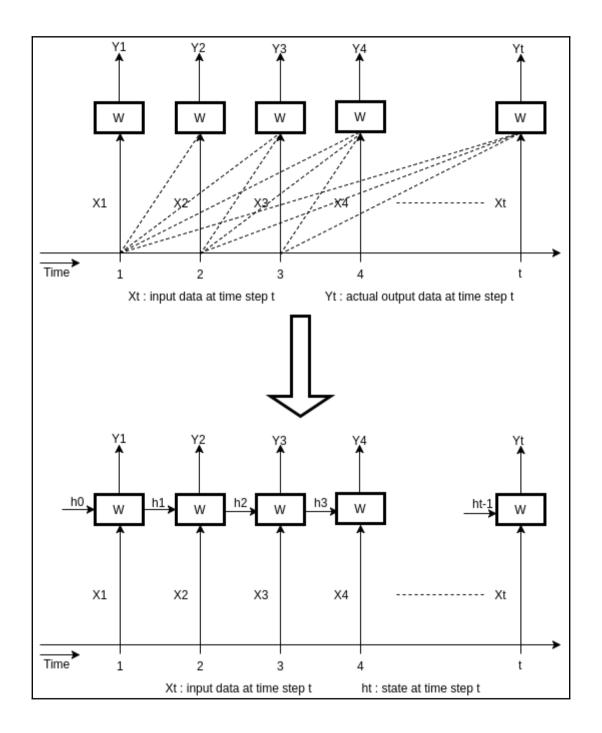


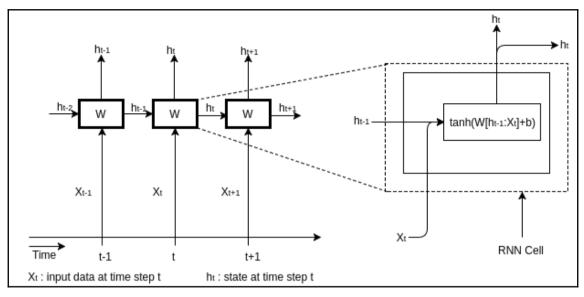


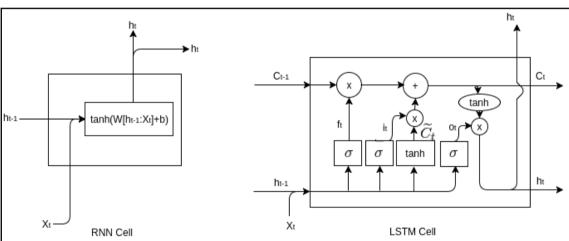


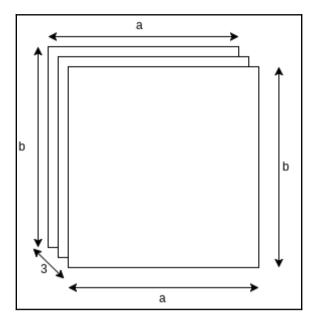


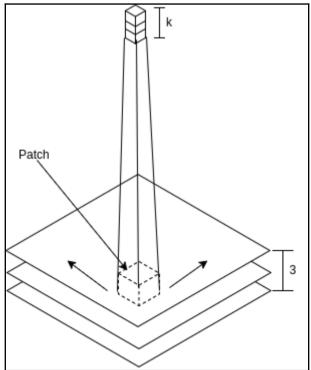


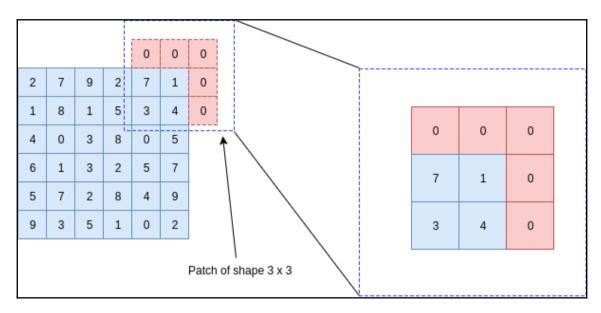




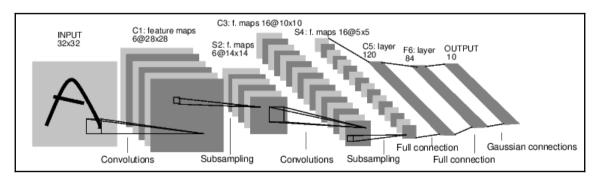


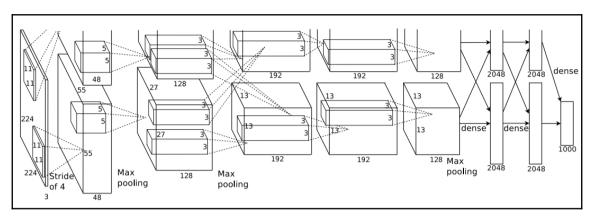


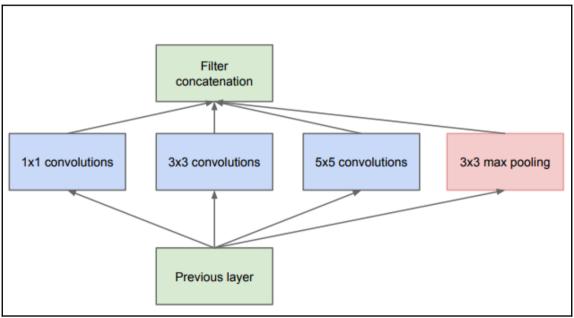


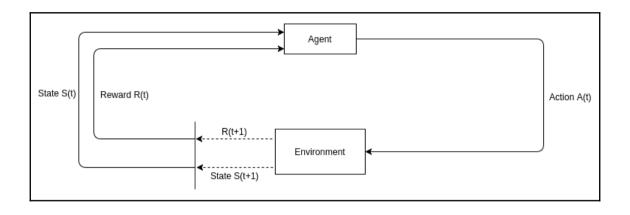




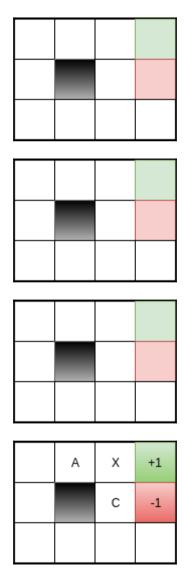




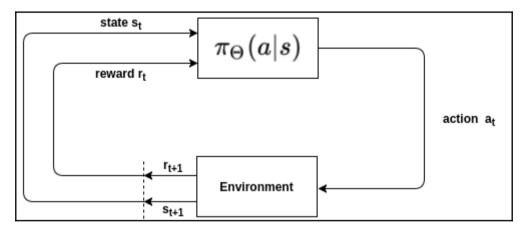


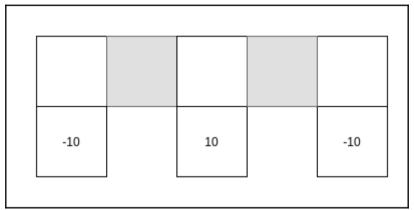


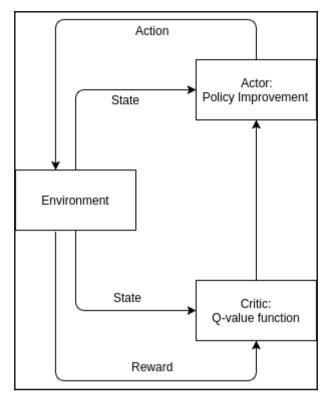
Chapter 3: Markov Decision Process



Chapter 4: Policy Gradients







$$E_{\pi_{\theta}}[\nabla_{\theta}log\pi_{\theta}(s,a)[Q^{\pi_{\theta}}(s,a)-b(s)]] = E_{\pi_{\theta}}[\nabla_{\theta}log\pi_{\theta}(s,a)Q^{\pi_{\theta}}(s,a)] - E_{\pi_{\theta}}[\nabla_{\theta}log\pi_{\theta}(s,a)b(s)]$$

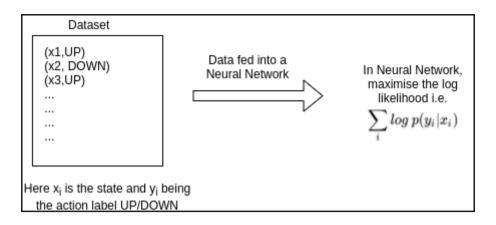
$$= E_{\pi_{\theta}}[\nabla_{\theta}log\pi_{\theta}(s,a)Q^{\pi_{\theta}}(s,a)] - \sum_{s}d^{\pi_{\theta}}(s)\sum_{a}\nabla_{\theta}\pi_{\theta}(s,a)b(s)$$

$$= E_{\pi_{\theta}}[\nabla_{\theta}log\pi_{\theta}(s,a)Q^{\pi_{\theta}}(s,a)] - \sum_{s}d^{\pi_{\theta}}(s)b(s)\nabla_{\theta}\sum_{a}\pi_{\theta}(s,a)$$

$$= E_{\pi_{\theta}}[\nabla_{\theta}log\pi_{\theta}(s,a)Q^{\pi_{\theta}}(s,a)] - \sum_{s}d^{\pi_{\theta}}(s)b(s)\nabla_{\theta}1$$

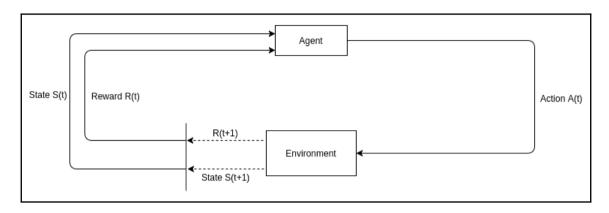
$$= E_{\pi_{\theta}}[\nabla_{\theta}log\pi_{\theta}(s,a)Q^{\pi_{\theta}}(s,a)] - \sum_{s}d^{\pi_{\theta}}(s)b(s) * 0$$

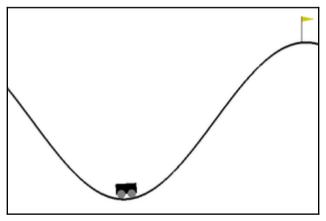
$$= E_{\pi_{\theta}}[\nabla_{\theta}log\pi_{\theta}(s,a)Q^{\pi_{\theta}}(s,a)]$$

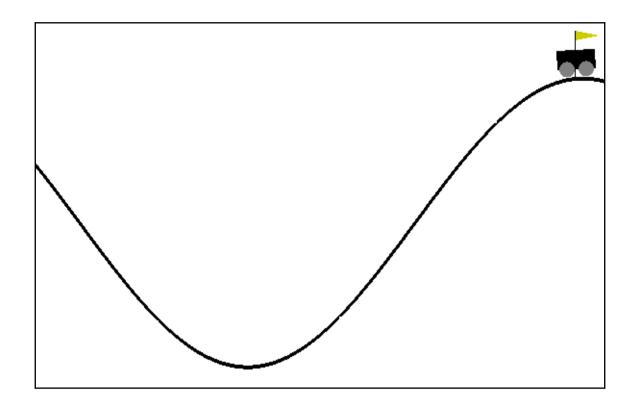


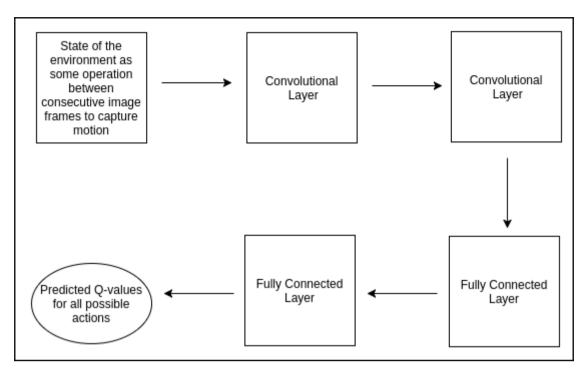
```
Episode 2 ended with reward -1.0
Episode 2 ended with reward -1.0
Episode 2 ended with reward 1.0
                                                         PlayPongPoli
pisode 2 ended with reward -1.0
Episode 2 ended with reward -1.0
pisode 2 ended with reward -1.0
Episode 2 ended with reward -1.0
Episode 2 ended with reward -1.0
Episode Reward : -20.0, Running Mean Award : -20.0
Episode 3 ended with reward -1.0
Episode 3 ended with reward 1.0
```

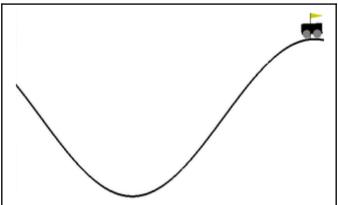
Chapter 5: Q-Learning and Deep Q-Networks

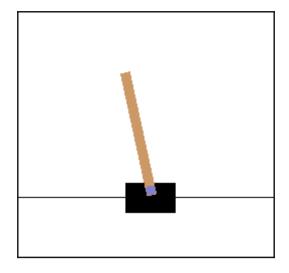




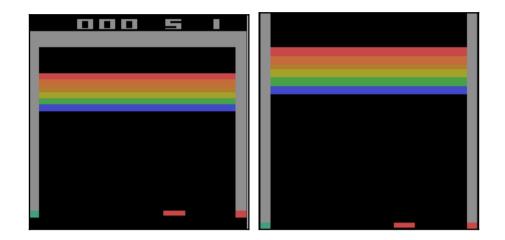


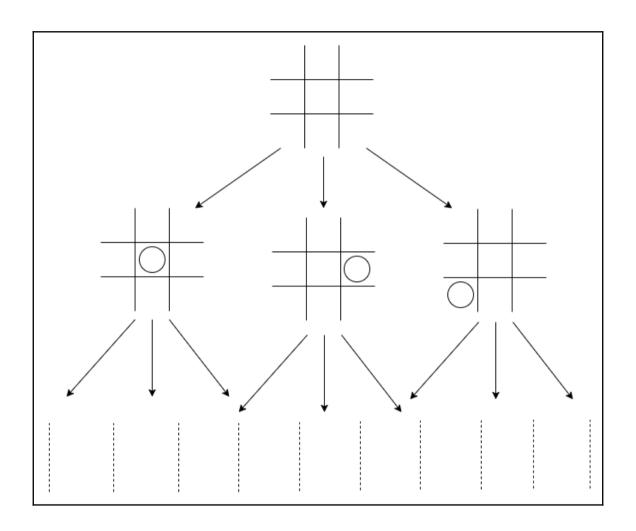




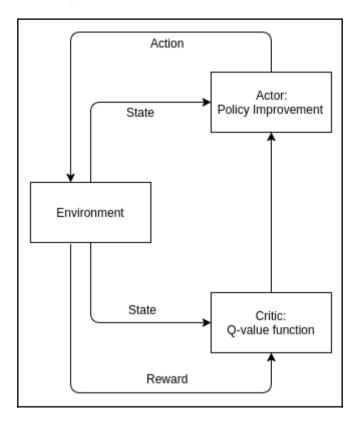


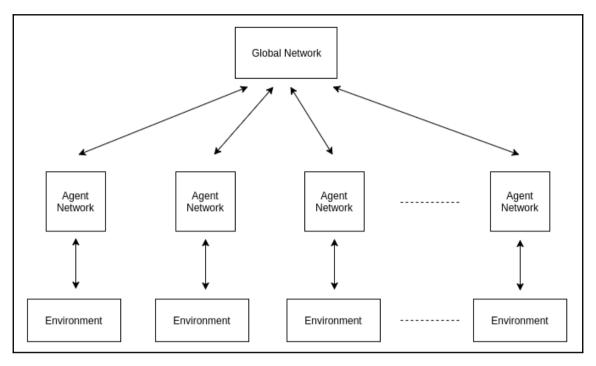






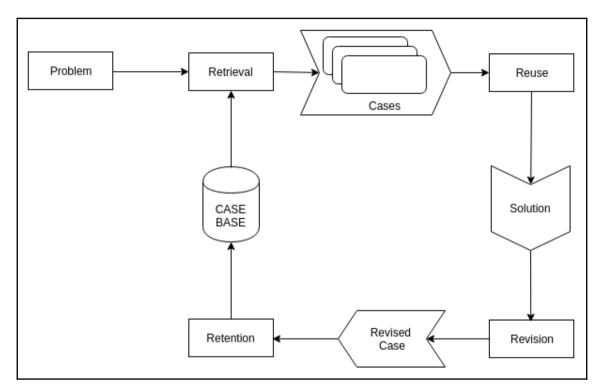
Chapter 6: Asynchronous Methods

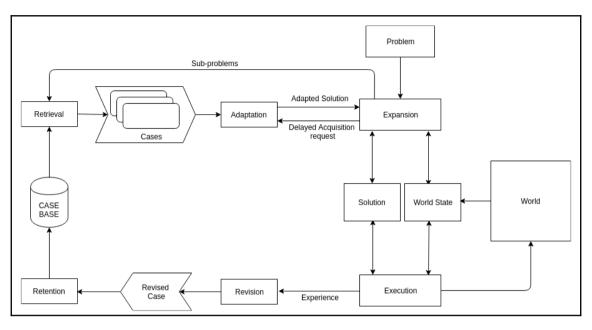


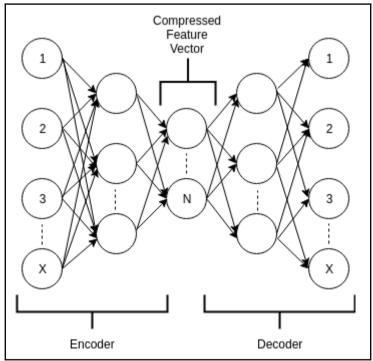


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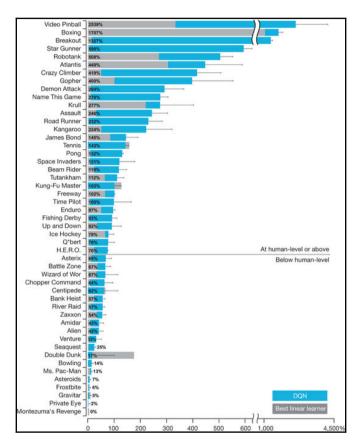
Chapter 7: Robo Everything – Real Strategy Gaming

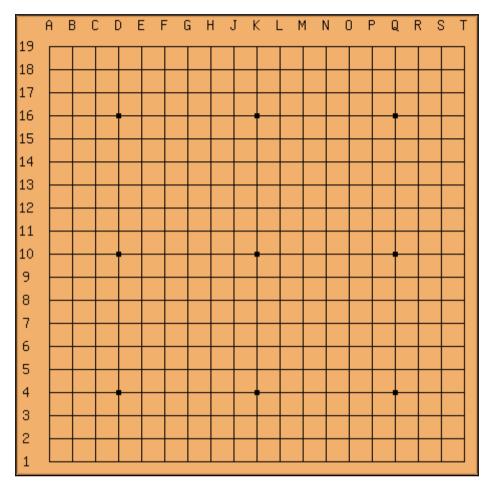


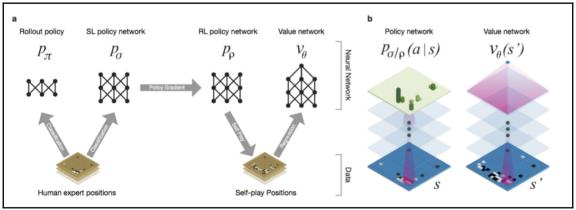


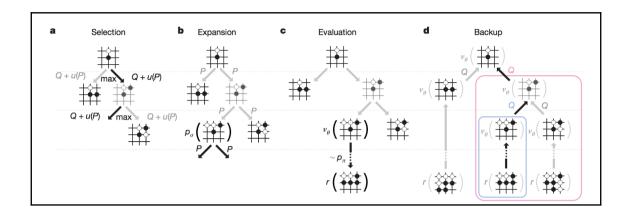


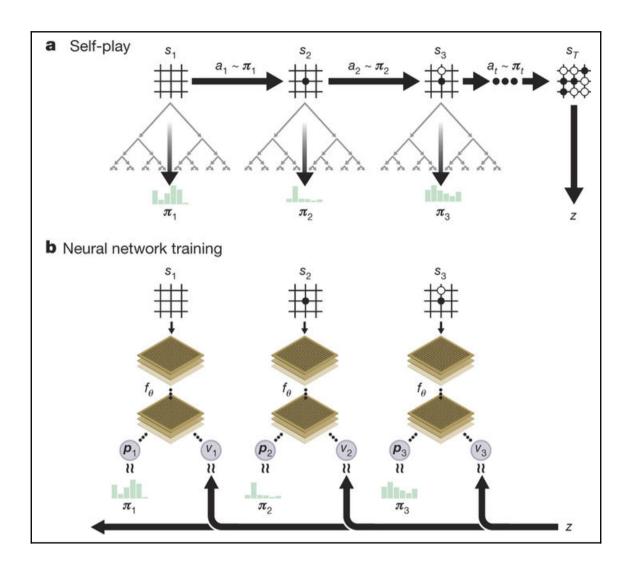
Chapter 8: AlphaGo – Reinforcement Learning at Its Best

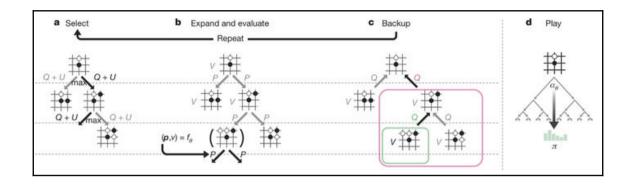




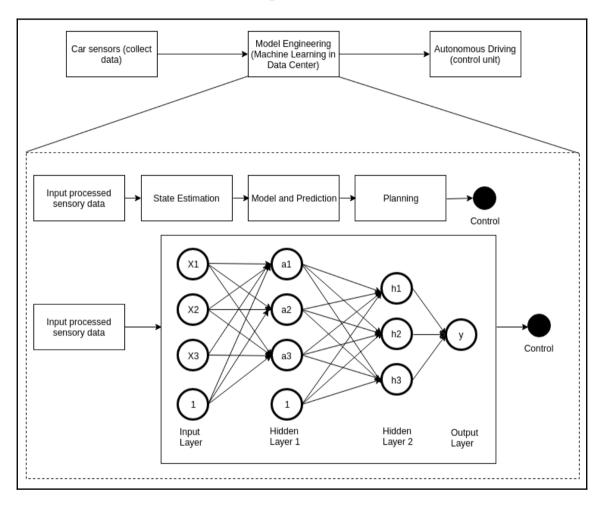


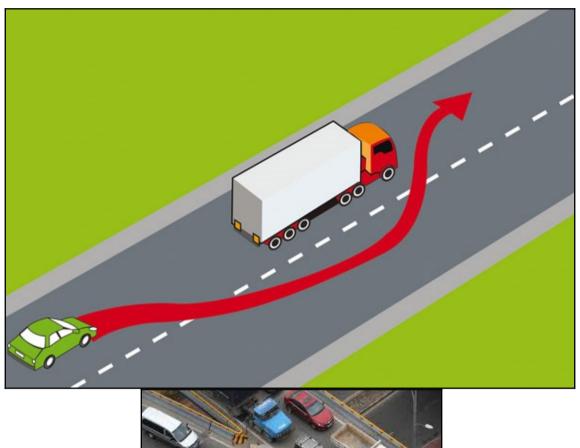






Chapter 9: Reinforcement Learning in Autonomous Driving

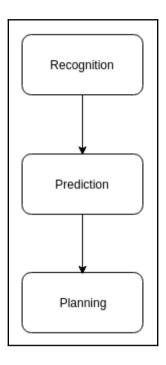


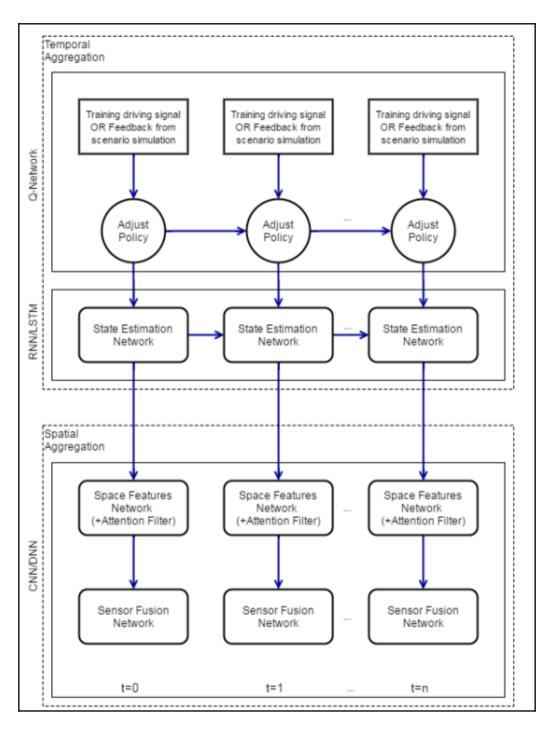


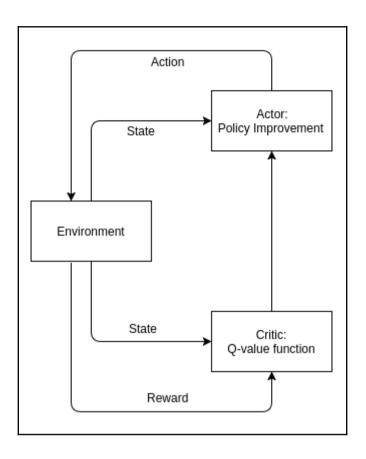


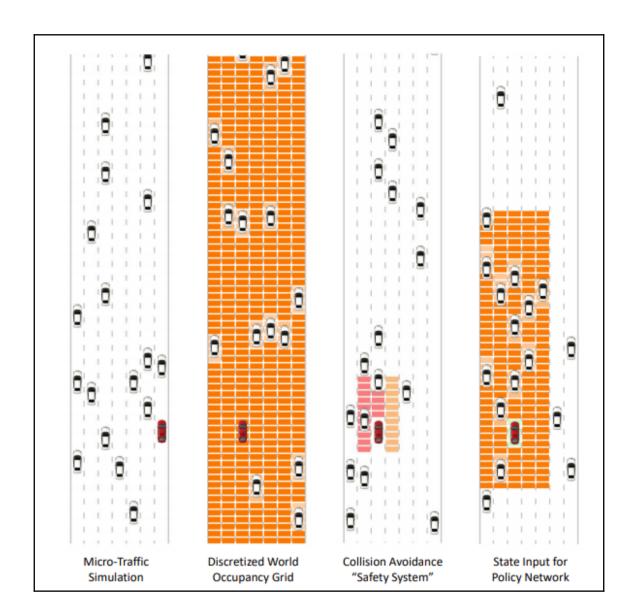




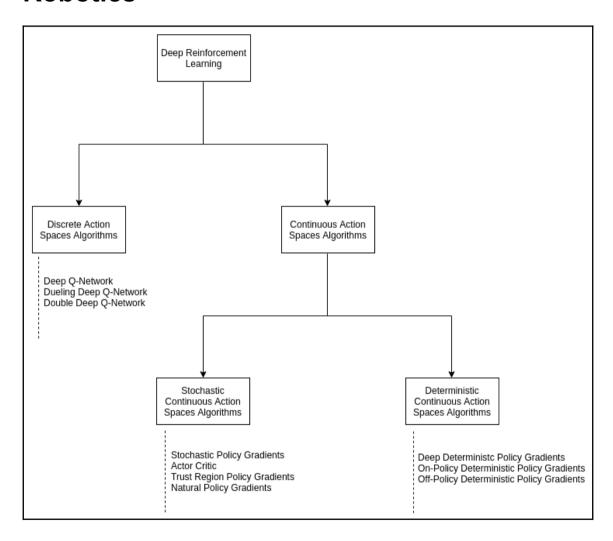


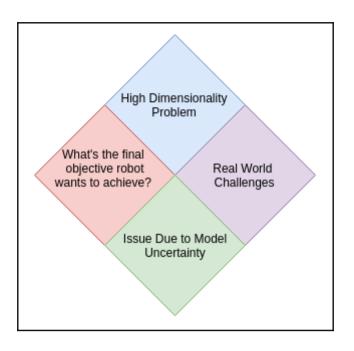


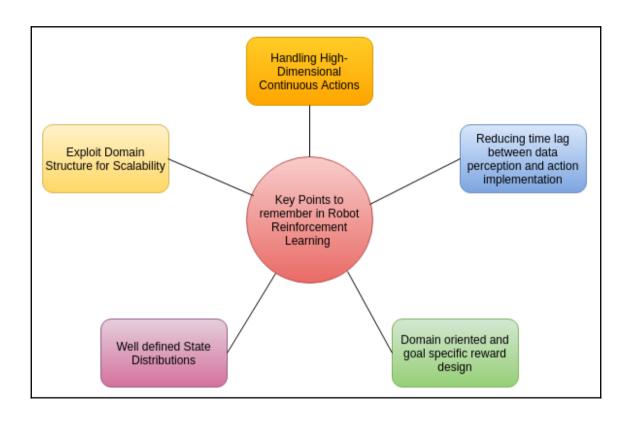




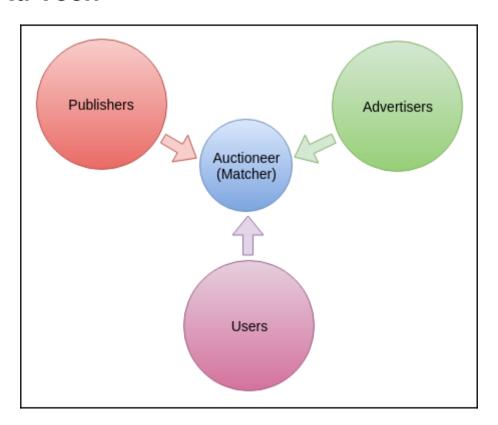
Chapter 11: Reinforcement Learning in Robotics

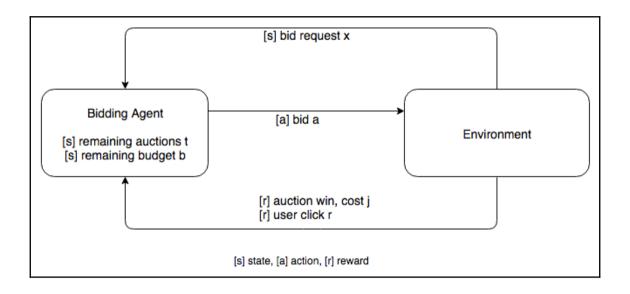




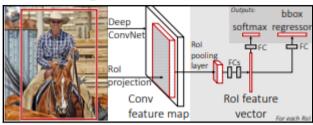


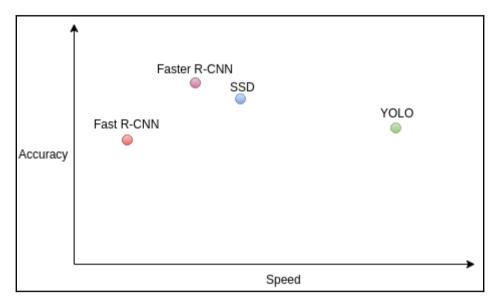
Chapter 12: Deep Reinforcement Learning in Ad Tech

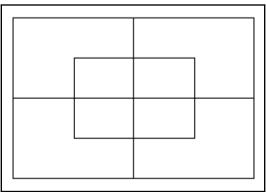


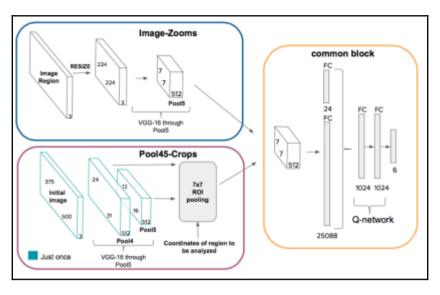


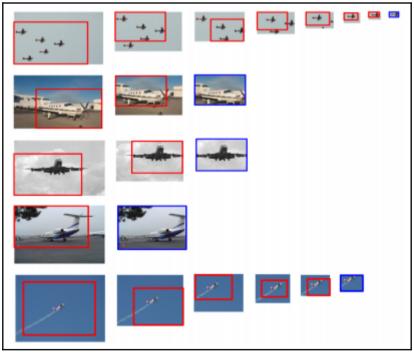
Chapter 13: Reinforcement Learning in Image Processing











Chapter 14: Deep Reinforcement Learning in NLP

