1. The article is headlined “Playing Atari with Deep Reinforcement Learning”
2. The article is written by Google DeepMind company.

It was published in the journal “Neural Information Processing Systems (NIPS)” in 2013.

1. The main idea of the article is to create the first deep learning model that successfully learn control policies from high-dimensional sensory input using reinforcement learning. The authors applied their method to seven Atari games from the Arcade Learning Environment with no adjustment of the architecture or learning algorithm.
2. The authors start by telling about challenges that they faced in deep reinforcement learning. In reinforcement learning an agent learns from reward that is frequently sparse, noisy and delayed. Also there is high correlation between sequences input states that has bad effect on learning. And the last challenge is that data distribution is changing as an agent learns new behaviors. The authors write that a convolutional neural network and experience replay technique can overcome these challenges to learn successful control policies. The article describes Q-learning algorithm that makes convolutional neural network and experience replay technique work together and presents special architecture of Q-network that helps to approximate expected reward of agent’s action in each game state. This network allows an agent to apply an optimal strategy to achieve a goal of a game. Further the authors report that their approach beats expert human players on 3 of seven Atari games and achieve the same level on 1 of them. In addition, the approach works better than previous algorithms are designed for Atari environment. In conclusion they got state-of-the-art results that make a huge contribution in reinforcement learning and can be used for further investigating of this field.
3. I find the article important because it contains a lot of modern techniques and algorithms that allow you make decision in hard environments using only raw data what no one else could do before.