Machine Learning vs Human Learning

https://www.youtube.com/watch?v=8vNxjwt2AqY
https://blog.openai.com/gym-retro/
Prior Knowledge
My Past Work

Reinforcement learning algorithms
- Trust Region Policy Optimization (TRPO)
- Proximal Policy Optimization (PPO)
  - used at OpenAI for robotics & Dota results

Open source software
- github.com/openai/gym (interface for defining tasks)
- github.com/openai/baselines (algorithm implementations)
What’s Missing?

Efficiency
Robustness
Incorporating prior knowledge
Gym Retro

A dataset of thousands of games; “ImageNet for RL”

Why games?
• problem solving, existing content

Old challenge
• surpass human perf at games

New challenge:
• solve previously unseen game as fast as a human, given prior training on similar games
Gym Retro

- Over 1000 games integrated
- Uses emulators for classic game systems, e.g. SEGA Genesis
- Open source: github.com/openai/gym-retro
- Public contest: contest.openai.com
  - 250 different teams submitted solutions
- Future: more research and contests
John Schulman

Thanks

John Schulman, OpenAI
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