

# Machine Learning vs Human Learning

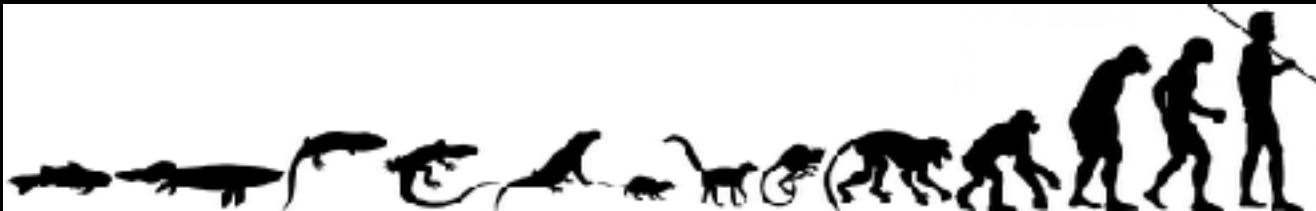
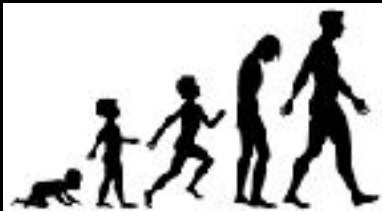


<https://www.youtube.com/watch?v=8vNxjw2AqY>



<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](https://github.com/openai/gym) (interface for defining tasks)
- [github.com/openai/baselines](https://github.com/openai/baselines) (algorithm implementations)



Robotic manipulation



Dota2



**INNOVATORS  
UNDER 35**

**John Schulman**

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# 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](https://github.com/openai/gym-retro)
- Public contest: [contest.openai.com](https://contest.openai.com)
  - 250 different teams submitted solutions
- Future: more research and contests

# Thanks

John Schulman, OpenAI

thanks to many colleagues from OpenAI and Berkeley who collaborated on the work I presented