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DRLND Office Hours Calendar1	https://calendar.google.com/calendar/embed?src=knowlabs.com_gu20ftpeljmr		
Textbook: Reinforcement Learning: An Introduction - second edition - by Richard S. Su	https://s3-us-west-1.amazonaws.com/udacity-drlnd/bookdraft2018.pdf	https://github.com/ShangtongZhang/reinforcement-learn	https://drive.google.com/file/d/1xeUDVGWGUUv1-ccUMAZHJLej2C7aAFWY/view
github	https://github.com/udacity/deep-reinforcement-learning		
Special Topics: Dynamic Programming	https://classroom.udacity.com/nanodegrees/nd893/parts/23d1307b-b908-436f-	8 Hours of Extracurricular Content here!	
DRLND Leaderboard	https://docs.google.com/spreadsheets/d/1hl3RCLm21JXmcolyomYKgyXJNT9v	<<< Add your best project scores and write ups here	
openai / gym Leaderboard	https://github.com/openai/gym/wiki/Leaderboard		
Waffle (issues)	https://waffle.io/udacity/drlnd-issues-tracker		
ZenDesk	https://udacity.zendesk.com/hc/en-us/requests/new		
Site Status updates	https://twitter.com/udacity		
Deadlines (P1: Aug 28, P2: Sep 25, P3: Oct 16, Term ends: Oct 30)	https://classroom.udacity.com/nanodegrees/nd893/parts/8f607726-757e-4ef5-8		
Project 1 rubric	https://review.udacity.com/#!/rubrics/1889/view		
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Articles			
Reinforcement Learning Doesn't Work Yet.	https://www.alexirpan.com/2018/02/14/rl-hard.html		
Why RL is flawed	https://thegradient.pub/why-rl-is-flawed/	RL works when problem is deterministic, discrete, static, fully observable, fully-known, single-agent, episodic, cheap and easy to simulate, easy t	
How to fix RL	https://thegradient.pub/how-to-fix-rl/	Combine reinforcement learning and meta learning - meta-reinforcement learning	
Evolution Strategies as a Scalable Alternative to Reinforcement Learning	https://blog.acolyer.org/		
Evolutionary algorithm outperforms deep-learning machines at video games	https://www.technologyreview.com/s/611568/evolutionary-algorithm-outperform		
Reinforcement Learning or Evolutionary Strategies? Nature has a solution: Both.	https://medium.com/beyond-intelligence/reinforcement-learning-or-evolutionary		
Metacar	https://www.metacar-project.com/		
The Essential Guide to Training Data	https://visit.figure-eight.com/rs/416-ZBE-142/images/The%20Essential%20Gui		
Machine Learning for Humans	https://www.dropbox.com/s/e38nil1dnl7481q/machine_learning.pdf?dl=0		
Blogs			
DeepMind	https://deepmind.com/blog/		
OpenAI	https://blog.openai.com/	see OpenAI tab	
Tensorflow	https://medium.com/@tensorflow		
The Gradient	https://thegradient.pub/	Stanford Artificial Intelligence Laboratory (SAIL)	https://thegradient.pub/tag/reinforcement-learning/
UC Berkeley AI Research	http://bair.berkeley.edu/blog/		
Andrej Karpathy blog (older)	http://karpathy.github.io/		
Andrej Karpathy blog (newer)	https://medium.com/@karpathy	30K followers	
Richard S. Sutton	http://incompleteideas.net/		
Moritz Hardt	http://blog.mrtz.org/		
Adrian Colyer: the morning paper	https://blog.acolyer.org/		
Towards Data Science	https://towardsdatascience.com/	Now featuring one of our own: Partha Pratim Neog	
- What's New in Deep Learning Research: Stronger Learning with Differentiable Plasti	https://towardsdatascience.com/whats-new-in-deep-learning-research-stronger		
Algorithmia	https://blog.algorithmia.com/introduction-to-reinforcement-learning/		
Locally Optimistic: The Blacker the Box	https://www.locallyoptimistic.com/post/the-blacker-the-box/		
Devan Stormont	https://voyageintech.com/	DRLND Student	
Google AI Blog	https://ai.googleblog.com/		
Google Developers	https://developers.googleblog.com/		
- Rules of Machine Learning: Best Practices for ML Engineering	https://developers.google.com/machine-learning/guides/rules-of-ml		

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- Google Developers Launchpad introduces The Lever, sharing applied-Machine Learr	https://developers.googleblog.com/2018/08/google-developers-launchpad-intro		
The Lever	https://medium.com/the-lever		
Books			
Grokking Deep Reinforcement Learning	https://www.manning.com/books/grokking-deep-reinforcement-learning	https://github.com/mimoralea/gdrl	
Cartoons			
Intuitive RL: Intro to Advantage-Actor-Critic (A2C)	https://hackernoon.com/intuitive-rl-intro-to-advantage-actor-critic-a2c-4ff545978		
Cheatsheets			
Cheat Sheets for AI, Neural Networks, Machine Learning, Deep Learning & Big Data	https://becominghuman.ai/cheat-sheets-for-ai-neural-networks-machine-learnin		
Cloud			
Tenzar	https://www.tenzar.com/		
Floydhub	https://www.floydhub.com/	Creating a 'Run on FloydHub' Button:	https://docs.floydhub.com/guides/run_on_floydhub_button/
Seedbank	http://tools.google.com/seedbank/		
TensorFlow Hub	https://www.tensorflow.org/hub/		
Conferences			
~~NIPS 2017 - videos~~	https://www.facebook.com/pg/nipsfoundation/videos/?ref=page_internal		
~~ICML 2018 - Stockholm - July 10-15, 2018~~	https://medium.com/@jianzhang_23841/a-comprehensive-summary-and-categ		
Artificial Intelligence Conference - San Francisco - Sep 5-7, 2018 - $1895+	https://conferences.oreilly.com/artificial-intelligence/ai-ca/public/register		
Deep Learning Summit - Toronto - October 25-26, 2018 - C$695+	https://www.re-work.co/events/deep-learning-summit-toronto-canada-2018		
Deep Learning Summit - San Francisco - January 24 - 25, 2019	https://www.re-work.co/events/deep-learning-summit-san-francisco-2019		
Community			
DRLNG Students	https://docs.google.com/spreadsheets/d/1veKepeuZ4pFSLO8CIdZ7JSkiym41f	Includes github and blog links	
Research Discussions	https://docs.google.com/spreadsheets/d/1tUneDHaS-G3JJQRYvM_eTGc4PWj	https://youtu.be/hitWL7heZio	
How to Lead a Discussion of Scientific Journal Articles	https://uvic470ecology.weebly.com/uploads/1/2/4/4/12445281/470_howtoleadd		
Leading a discussion of a scientific paper	https://arthropodecology.com/2015/01/21/leading-a-discussion-of-a-scientific-pa		
Competitions			
Pommerman	https://www.pommerman.com/		
Halite	https://halite.io/		
NIPS 2018 Competition Track	https://nips.cc/Conferences/2018/CompetitionTrack		
~~OpenAI Retro Contest~~	https://contest.openai.com/2018-1/		
Courses			
Stanford	https://online.stanford.edu/courses		
Thomas Simonini	https://simoninithomas.github.io/Deep_reinforcement_learning_Course/		
- Diving deeper into Reinforcement Learning with Q-Learning	https://medium.freecodecamp.org/diving-deeper-into-reinforcement-learning-wi		
Fellowship AI	https://fellowship.ai/		
UC Berkeley - Deep Reinforcement Learning	http://rail.eecs.berkeley.edu/deeprlcourse/		
- Yousof of DRLND: Imitating Learning	https://youtu.be/tV1vFtoJCxw	https://drlnd.slack.com/archives/C9KU4GN6S/p1535092	

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Github		
30 Amazing Machine Learning Projects for the Past Year (v.2018)	https://medium.mybridge.co/30-amazing-machine-learning-projects-for-the-pas	https://github.com/PAIR-code/facets
Simple example of DQN for Unity using Keras	https://github.com/xkiwilabs/DQN_Unity_Keras	
Deep reinforcement learning GPU libraries for NVIDIA Jetson with PyTorch, OpenAI G	https://github.com/dusty-nv/jetson-reinforcement	
Distributed evolution	https://github.com/openai/evolution-strategies-starter	
Deep Learning with PyTorch	https://github.com/udacity/DL_PyTorch	
TensorForce: A TensorFlow library for applied reinforcement learning	https://github.com/reinforceio/tensorforce	
Large-Scale Study of Curiosity-Driven Learning	https://github.com/openai/large-scale-curiosity	
PlaidML is the easiest, fastest way to learn and deploy deep learning on any device	https://github.com/plaidml/plaidml	https://techcrunch.com/2018/08/16/intel-buys-deep-learning-startup-vertex-ai-to-join-its-movidius-unit
OpenAI Baselines is a set of high-quality implementations of reinforcement learning alg	https://github.com/openai/baselines	
- PRE	https://github.com/openai/baselines/blob/master/baselines/deepq/replay_buffer	
Deep reinforcement learning GPU libraries for NVIDIA Jetson with PyTorch, OpenAI G	https://github.com/dusty-nv/jetson-reinforcement	
Deep RL Arm Manipulation	https://github.com/udacity/RoboND-DeepRL-Project	
Unity Machine Learning Agents Toolkit	https://github.com/Unity-Technologies/ml-agents	
alpha-zero-general: a clean implementation based on AlphaZero for any game in any fr	https://github.com/suragnair/alpha-zero-general	
Google: Dopamine is a research framework for fast prototyping of reinforcement learnir	https://github.com/google/dopamine	https://ai.googleblog.com/2018/08/introducing-new-framework-for-flexible.html
Glossary		
NVIDIA Deep Learning Glossary	https://www.nvidia.com/content/g/pdfs/nvidia-deeplearning-glossary-llkcmb.pdf	
Google: Machine Learning Glossary	https://developers.google.com/machine-learning/glossary/	
Infographics		
A Complete Guide on Getting Started with Deep Learning in Python	https://s3-ap-south-1.amazonaws.com/av-blog-media/wp-content/uploads/2018	
Jobs		
OpenAI - Machine Learning Engineer	https://www.linkedin.com/jobs/view/816826907/	
Udacity Alumni Slack	https://udacityalumni.slack.com/	
Papers - a few "meta" Paper sites (shaded rows), then alphabetical		
Deep Reinforcement Learning: An Overview	https://arxiv.org/pdf/1701.07274.pdf	70 pages including Books | Surveys and Reports | Courses | Tutorials | Conferences, Journals and Workshops | Blogs | Testbeds | Algorithm In
reddit MachineLearning	https://www.reddit.com/r/MachineLearning/	https://youtu.be/SHTOI0KtZnU
Arxiv Sanity Preserver	http://www.arxiv-sanity.com/	Serving last 50 000+ papers from cs.[CV|CL|LG|AI|NE]/stat.ML
Distill	https://distill.pub/	Machine Learning Research Should Be Clear, Dynamic and Vivid. Distill Is Here to Help.
How to Read and Understand a Scientific Paper: A Step-by-Step Guide for Non-Scienti	https://www.huffingtonpost.com/jennifer-raff/how-to-read-and-understand-a-scie	https://violentmetaphors.com/2013/08/25/how-to-read-and-understand-a-scientific-paper-2/
A Brief Survey of Deep Reinforcement Learning	https://arxiv.org/pdf/1708.05866.pdf	
A Distributional Perspective on Reinforcement Learning	https://arxiv.org/pdf/1707.06887.pdf	
Asynchronous Methods for Deep Reinforcement Learning	https://arxiv.org/pdf/1602.01783.pdf	
Augmented Random Search (ARS)	https://arxiv.org/pdf/1803.07055.pdf	https://drlnd.slack.com/archives/C9KU4GN6S/p1533314622000126
Deep Recurrent Q-Learning for Partially Observable MDPs	https://arxiv.org/pdf/1507.06527.pdf	
Deep Reinforcement Learning that Matters	https://arxiv.org/pdf/1709.06560.pdf	
Deep Reinforcement Learning with Double Q-learning	https://arxiv.org/pdf/1509.06461.pdf	
Dueling Network Architectures for Deep Reinforcement Learning	https://arxiv.org/pdf/1511.06581.pdf	
Emergence of Locomotion Behaviours in Rich Environments	https://arxiv.org/pdf/1707.02286.pdf	
Evolving simple programs for playing Atari games	https://arxiv.org/abs/1806.05695	Cartesian Genetic Programming (CGP)
Hierarchical Reinforcement Learning with the MAXQ Value Function Decomposition	https://arxiv.org/pdf/cs/9905014.pdf	
Human-level control through deep reinforcement learning	https://storage.googleapis.com/deepmind-media/dqn/DQNNaturePaper.pdf	https://www.cs.swarthmore.edu/~meeden/cs63/s15/nature15a.pdf
Issues in Using Function Approximation for Reinforcement Learning	http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.73.3097&rep=rep1&t	

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Meta-Gradient Reinforcement Learning	https://arxiv.org/pdf/1805.09801.pdf						
Multi-Agent Reinforcement Learning: A Report on Challenges and Approaches	https://arxiv.org/abs/1807.09427v1						
Neural Fitted Q Iteration - First Experiences with a Data Efficient Neural Reinforcement	http://ml.informatik.uni-freiburg.de/former/_media/publications/rieecml05.pdf						
Noisy Networks for Exploration	https://arxiv.org/pdf/1706.10295.pdf						
Playing Atari with Deep Reinforcement Learning	https://arxiv.org/pdf/1312.5602.pdf	DeepMind Technologies (2013)	https://www.cs.to				
Prioritized Experience Replay	https://arxiv.org/pdf/1511.05952.pdf						
Quantum Reinforcement Learning	https://arxiv.org/pdf/0810.3828.pdf	See `http://bit.ly/drlndtalk` on August 13					
Rainbow: Combining Improvements in Deep Reinforcement Learning	https://arxiv.org/pdf/1710.02298.pdf	Mentioned in Yann LeCun's IJCAI '18 keynote:	https://www.facebook.com/ijcaiecai18/videos/2184672041673770/				
Reinforcement Learning Using Quantum Boltzmann Machines	https://1qbit.com/wp-content/uploads/2016/12/1QBit-Research-Paper-%E2%80	See `http://bit.ly/drlndtalk` on August 13					
Reinforcement Learning with Long Short-Term Memory (LSTM)	https://papers.nips.cc/paper/1953-reinforcement-learning-with-long-short-term-						
RUDDER: Return Decomposition for Delayed Rewards	https://arxiv.org/pdf/1806.07857.pdf						
Some Papers Don't Reproduce. Should We Care?	https://www.dropbox.com/s/wwryzck6giue1j1/Irpan%20-%20The%20Cost%20c	Suggestion: shift the trade-off curve entirely, such that the same amount of researcher time naturally produces more robust and reproducible res					
State of the Art Control of Atari Games Using Shallow Reinforcement Learning	https://arxiv.org/abs/1512.01563						
The Effects of Memory Replay in Reinforcement Learning	https://arxiv.org/pdf/1710.06574.pdf	https://drlnd.slack.com/archives/CBFS66ANQ/p1535079502000100					
Thesis: Insights in Reinforcement Learning: Formal analysis and empirical evaluation o	https://hadovanhasselt.files.wordpress.com/2015/12/insights_in_reinforcement_						
Tight Performance Bounds on Greedy Policies Based on Imperfect Value Functions	http://www.leemon.com/papers/1993wb2.pdf						
Troubling Trends in Machine Learning Scholarship	https://arxiv.org/pdf/1807.03341.pdf						
Tuning Recurrent Neural Networks With Reinforcement Learning	https://arxiv.org/pdf/1611.02796v3.pdf						
Slides							
(Advances in) Quantum Reinforcement Learning	http://qtml2017.di.univr.it/resources/Slides/Progress-in-Quantum-Reinforcemen						
Algorithmic Machine Learning							
Tools							
PyTorch	https://pytorch.org/	https://pytorch.org/tutorials/					
Roboschool	https://blog.openai.com/roboschool/	Alternative to MuJoCo (Not well maintained)					
ROS	http://www.ros.org/						
Unity	https://unity3d.com/machine-learning/	https://github.com/Unity-Technologies/ml-agents/blob/master/docs/Getting-Started-with-Balance-Ball.md					
Videos							
Reinforcement learning course - David Silver	https://www.youtube.com/playlist?list=PL7-jPKtc4r78-wCZcQn5IqyuWhBZ8fOx	10 videos 131,681 views Last updated on Feb 23, 2016					
Deep Reinforcement learning course - Sergey Levine (UC Berkeley, CS294-112)	https://www.youtube.com/playlist?list=PLkFD6_40KJIznC9CDbVTjAF2oyt8_VA	24 Lectures, Fall 2017 Session					
Two Minute papers	https://www.youtube.com/channel/UCbfYPyITQ-7l4upoX8nvctg						
Deep RL Bootcamp 2017 - Pieter Abbeel	https://sites.google.com/view/deep-rl-bootcamp/lectures	15 videos + slides					
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