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Deep Reinforcement Learning for the JVM (Deep-Q, A3C)












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 **164** commits **12** branches **8** releases **14** contributorsBranch: **master** ▼[New pull request](#)[Find file](#)[Clone or download](#) ▼

AlexDBlack committed on **GitHub** Merge pull request [#68](#) from deeplearning4j/ab_67_iterlistener ...

Latest commit 92e487e 2 days ago

 .github	Adds PR issue templates for Github (#29)	6 months ago
 contrib	Offer the option of automated formatting (#25)	6 months ago
 rl4j-ale	Update to version 0.9.2-SNAPSHOT	2 months ago
 rl4j-api	Update to version 0.9.2-SNAPSHOT	2 months ago
 rl4j-core	Fixes for iteration listener API change	2 days ago
 rl4j-doom	Update to version 0.9.2-SNAPSHOT	2 months ago

 rl4j-gym	Update to version 0.9.2-SNAPSHOT	2 months ago
 rl4j-malmo	Add support for Malmo MDP (pull #21)	19 days ago
 .gitignore	Add version check support	2 months ago
 LICENSE.txt	Public release	a year ago
 README.md	Add support for Malmo MDP (pull #21)	19 days ago
 cartpole.gif	Cartpole.gif	a year ago
 doom.gif	gif doom	a year ago
 malmo.gif	Add support for Malmo MDP (pull #21)	19 days ago
 perform-release.sh	Introduce SKIP_BUILD mode to perform-release.sh script (#52)	2 months ago
 pom.xml	Update URL of local nexus repo, as we moved from Nexus v2 to v3 (#65)	6 days ago
 scoregraph.png	norender	a year ago

README.md

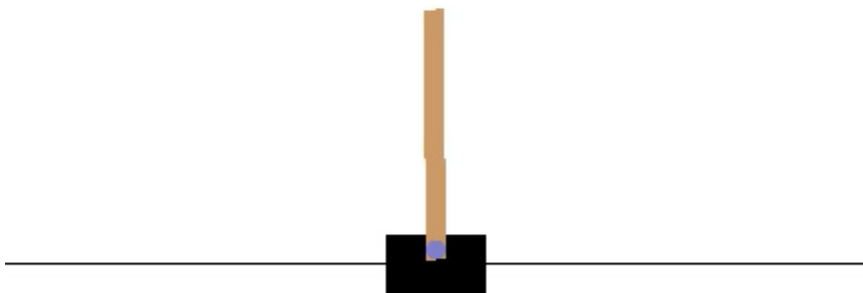
RL4J

RL4J is a reinforcement learning framework integrated with deeplearning4j and released under an Apache 2.0 open-source license. By contributing code to this repository, you agree to make your contribution available under an Apache 2.0 license.

- DQN (Deep Q Learning with double DQN)
- Async RL (A3C, Async NStepQlearning)

Both for Low-Dimensional (array of info) and high-dimensional (pixels) input.





Here is a useful blog post I wrote to introduce you to reinforcement learning, DQN and Async RL:

[Blog post](#)

[Examples](#)

[Cartpole example](#)

Disclaimer

This is a tech preview and distributed as is. Comments are welcome on our gitter channel: [gitter](#)

Quickstart

**** INSTALL rl4j-api before installing all (see below)!****

- mvn install -pl rl4j-api
- [if you want rl4j-gym too] Download and mvn install: [gym-java-client](#)
- mvn install

Visualisation

[webapp-rl4j](#)

Quicktry cartpole:

- Install [gym-http-api](#).
- launch http api server.
- run with this [main](#)

Doom

Doom is not ready yet but you can make it work if you feel adventurous with some additional steps:

- You will need vizdoom, compile the native lib and move it into the root of your project in a folder
- export MAVEN_OPTS=-Djava.library.path=THEFOLDEROFTHELIB
- mvn compile exec:java -Dexec.mainClass="YOURMAINCLASS"

Malmo (Minecraft)



- Download and unzip Malmo from [here](#)
- export MALMO_HOME=YOURMALMO_FOLDER
- export MALMO_XSD_PATH=\$MALMO_HOME/Schemas
- launch malmo per [instructions](#)
- run with this [main](#)

WIP

- Documentation
- Serialization/Deserialization (load save)
- Compression of pixels in order to store 1M state in a reasonable amount of memory
- Async learning: A3C and nstep learning (requires some missing features from dl4j (calc and apply gradients)).

Author

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Proposed contribution area:

- Continuous control
- Policy Gradient
- Update gym-java-client when gym-http-api gets compatible with pixels environments to play with Pong, Doom, etc ..