

FCAI

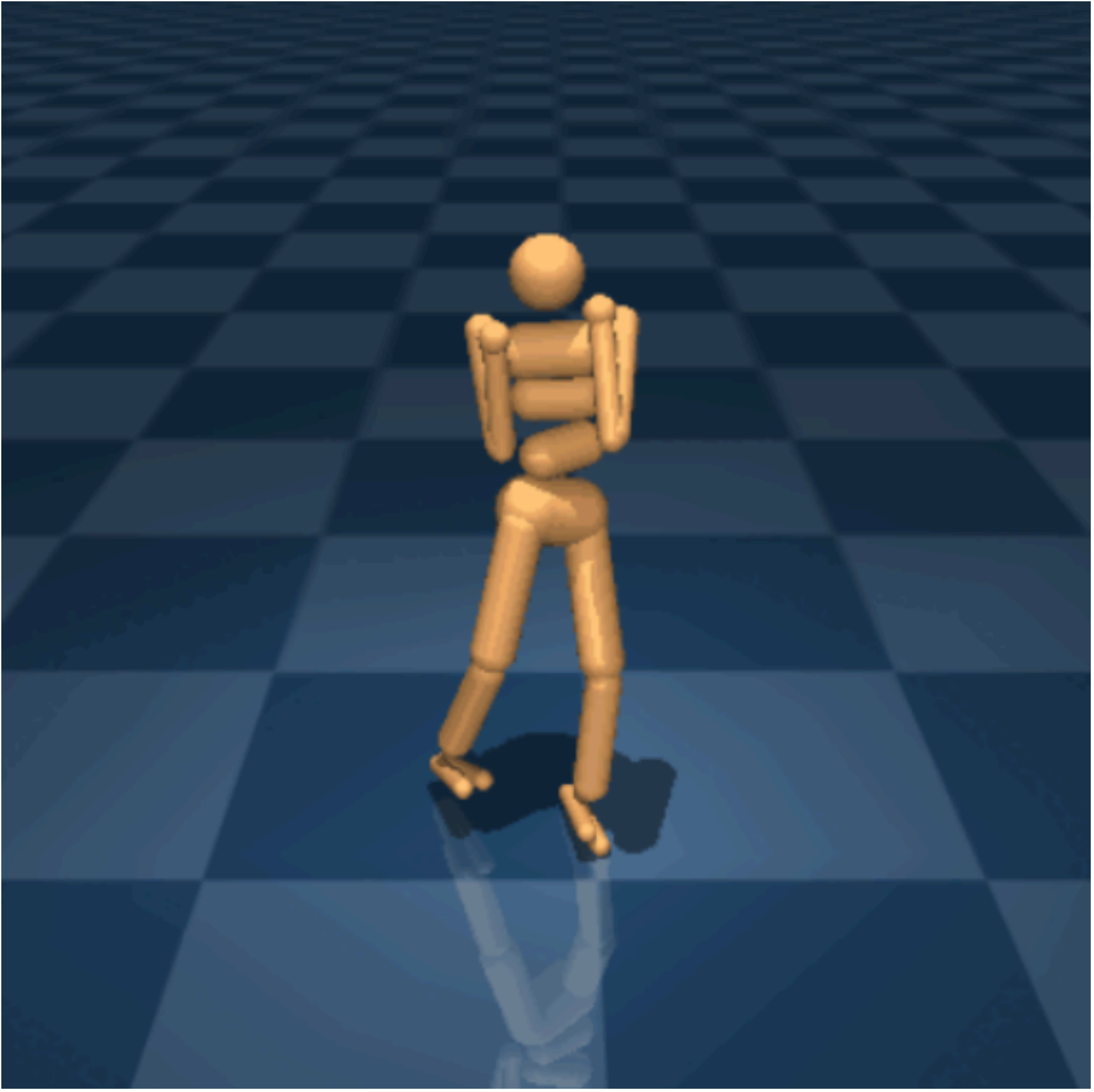
fcai.fi

Model-free

Model-based



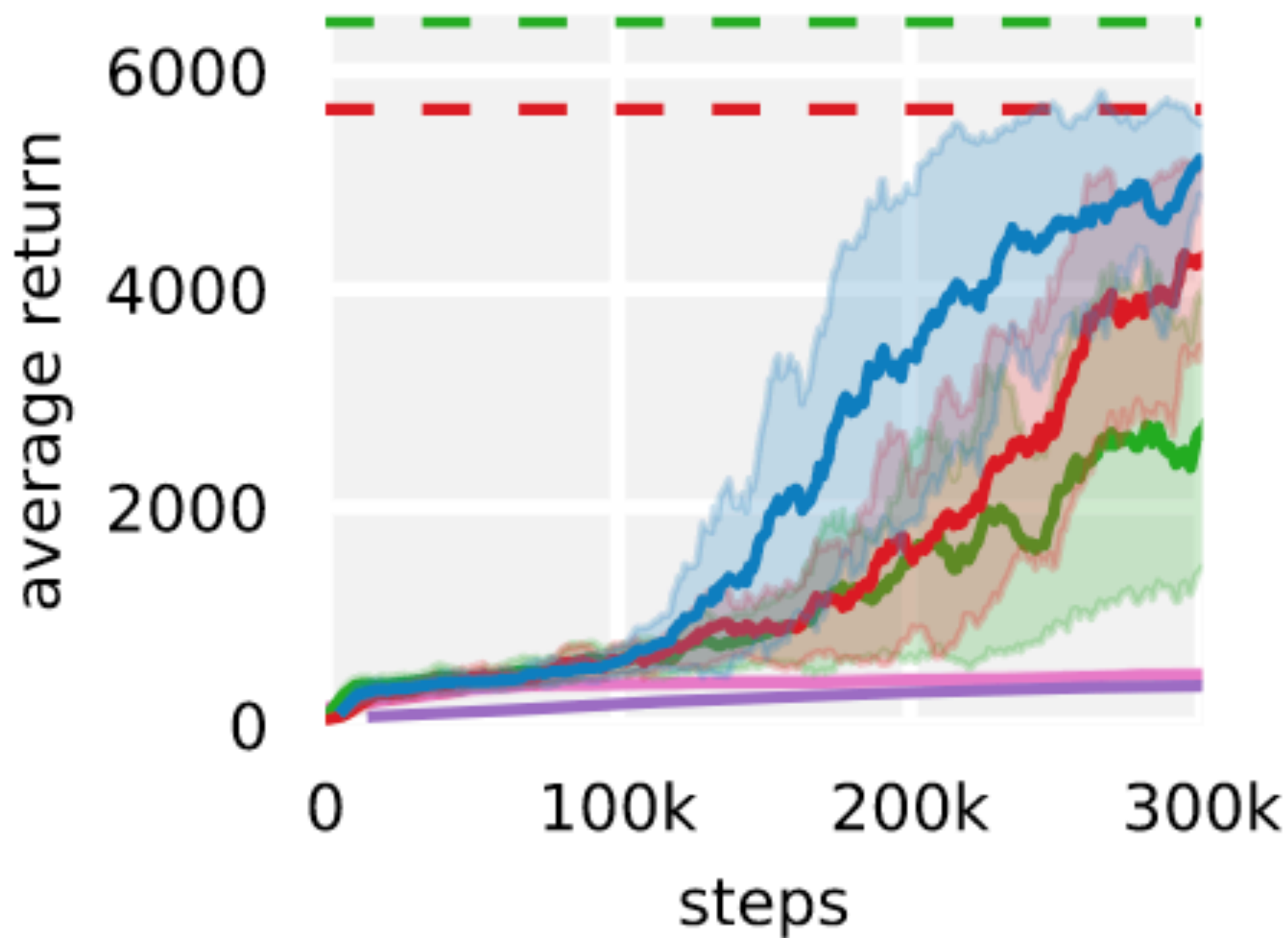




Model-free vs Model-based RL



Humanoid

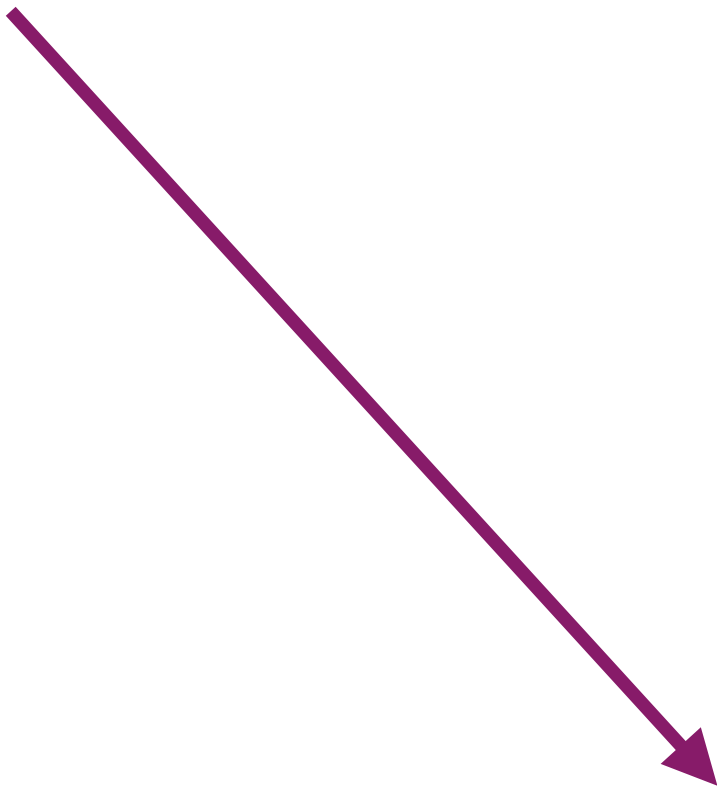


Tutorial Model-Based Methods in Reinforcement Learning @ICML 2020 by Igor Mordatch and Jesse Hanrick

Best asymptotic performance



Sample efficient




	Model-free	Model-based
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Asymptotic performance



Depends

	Model-free	Model-based
Asymptotic performance		Depends

Sample efficiency



	Model-free	Model-based
Asymptotic performance	✓	Depends
Sample efficiency	✗	✓

**Computation at
deployment**



	Model-free	Model-based
Asymptotic performance	✓	Depends
Sample efficiency	✗	✓
Computation at deployment	✓	✗/✓

Adapting to new tasks



	Model-free	Model-based
Asymptotic performance	✓	Depends
Sample efficiency	✗	✓
Computation at deployment	✓	✗/✓
Adapting to new tasks	✗	✓

<h1>Exploration</h1>		
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Model-free vs Model-based RL

	Model-free	Model-based
Asymptotic performance	✓	Depends
Sample efficiency	✗	✓
Computation at deployment	✓	✗/✓
Adapting to new tasks	✗	✓
Exploration	✗	✓

What is a “Model”?

*Definition: a model is a representation that **explicitly** encodes knowledge about the structure of the environment and task.*