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TECH DAY

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Guenda Sciancalepore

Cloud Solution Architect – Data & AI

@guenda_s

TechShivaWolf

guenda-sciancalepore

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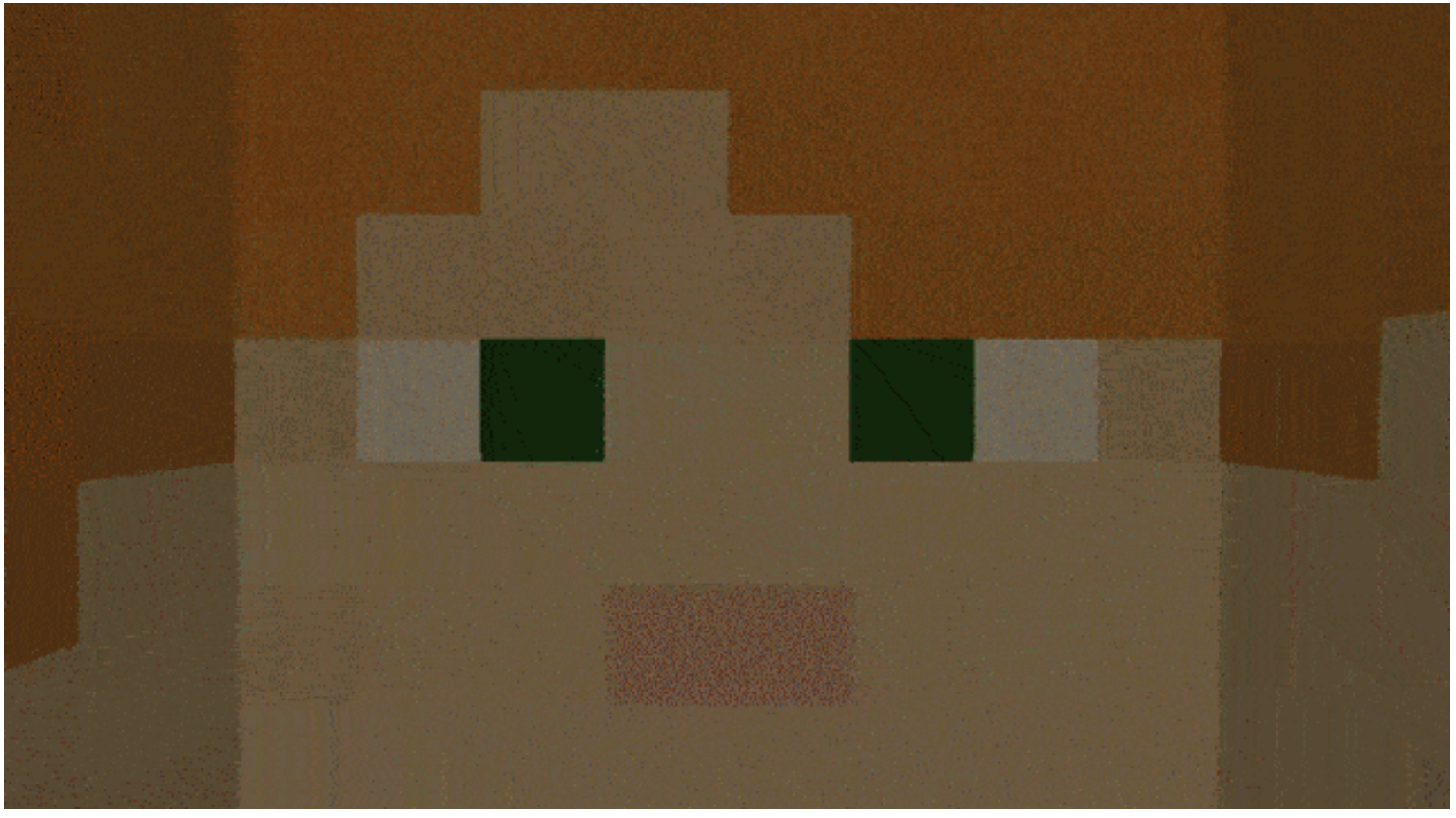
Level up your game using Azure and Reinforcement Learning!

Goal: getting the Agent out of the maze



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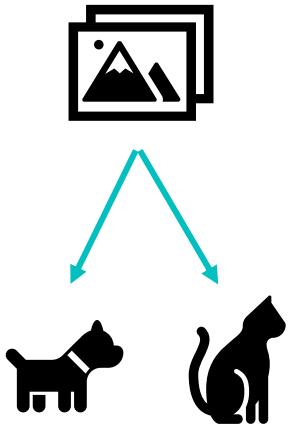
What is Machine Learning?

"Machine Learning is the study of computer algorithms that allow computer programs to automatically improve through experience."

Tom Mitchell

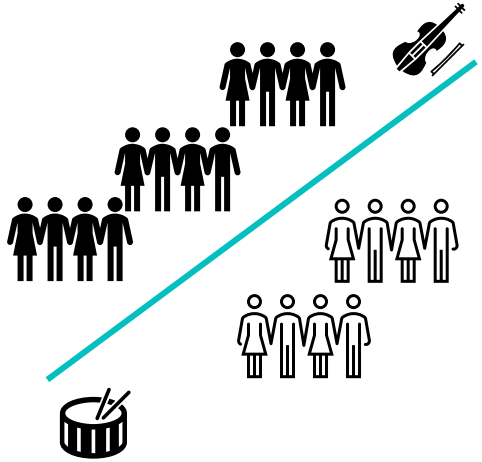
Machine Learning types

What's in the pic?



Supervised Learning

What would you like?



Unsupervised Learning

Can I play with you?

Reinforcement Learning

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What is Reinforcement Learning?

Reinforcement Learning

Main goal:

Taking suitable actions to maximize reward in a particular environment.

Components of an RL agent:

- Agent
- Environment (transitions and reward models)
- Actions (policies)
- Rewards (value function)

Categories of RL Algorithms

Model Based	Learns a transition and reward models of the environment to compute optimal policy
Model Free	Learns an optimal policy by interacting with the environment

Value Based	Learns a value function explicitly and computes the policy from that
Policy Based	Learns a policy directly without computing a value function
Actor Critic	Learns both a policy (the actor) and a value function (the critic), which measures how good a policy is

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Azure AI Platform

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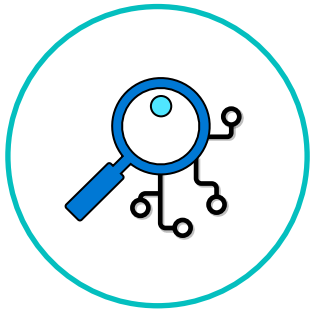
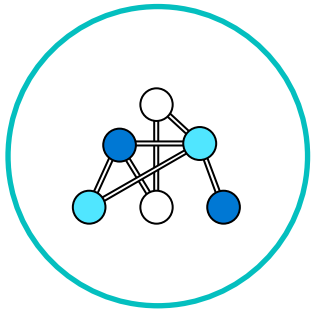
Azure AI

AI apps & agents



Knowledge mining



Machine learning

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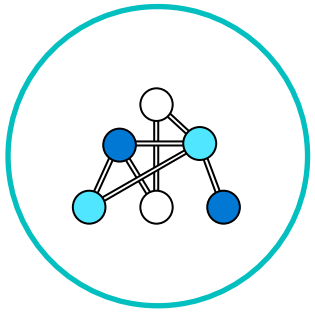
Azure AI

AI apps & agents

Knowledge mining



Machine learning

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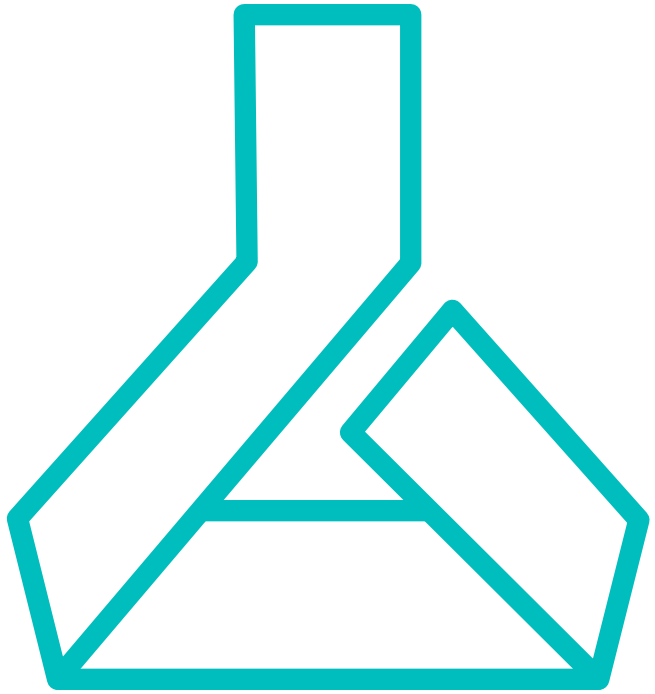
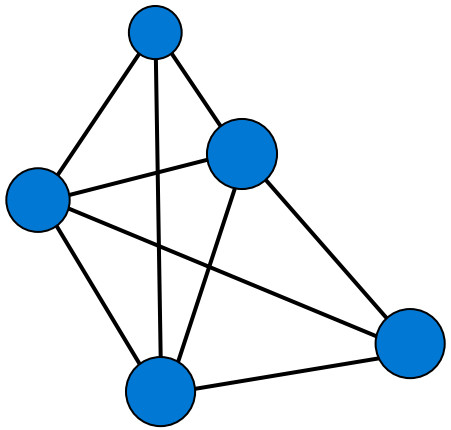


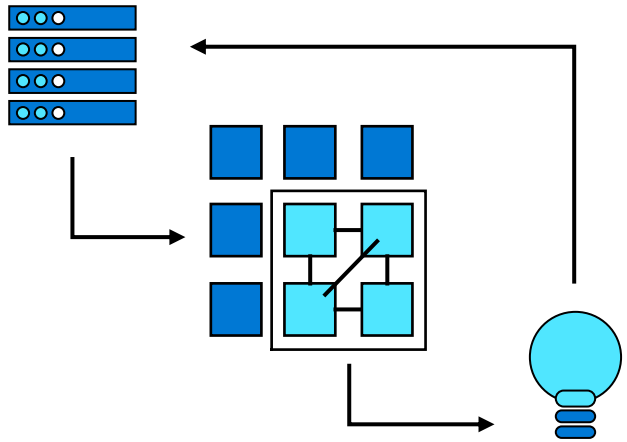
Azure Machine Learning

Azure Machine Learning Service



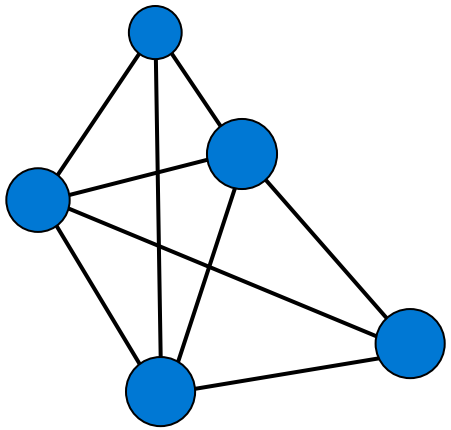
Simplified machine learning

+

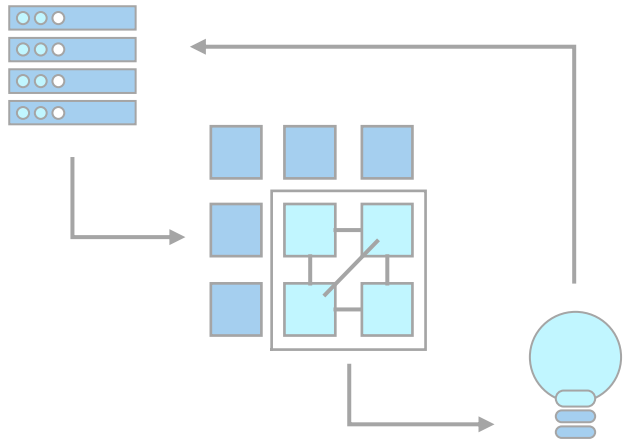


End to end lifecycle management

Azure Machine Learning Service



Simplified machine learning



End to end lifecycle management

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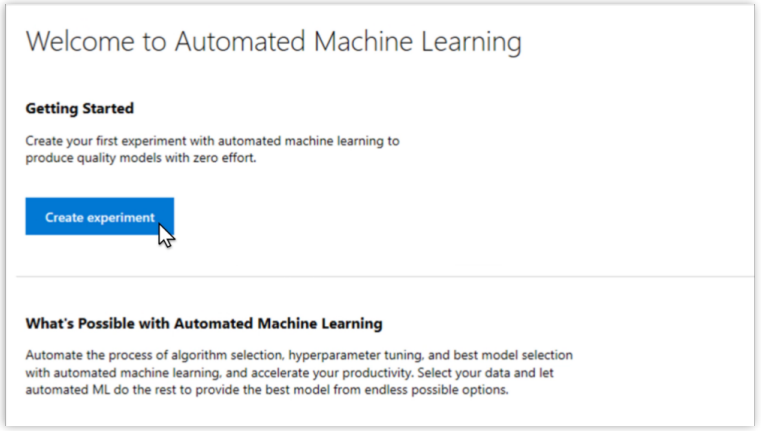
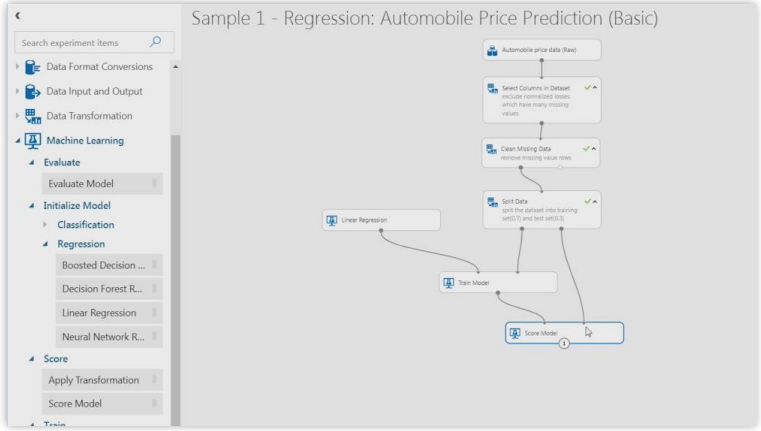
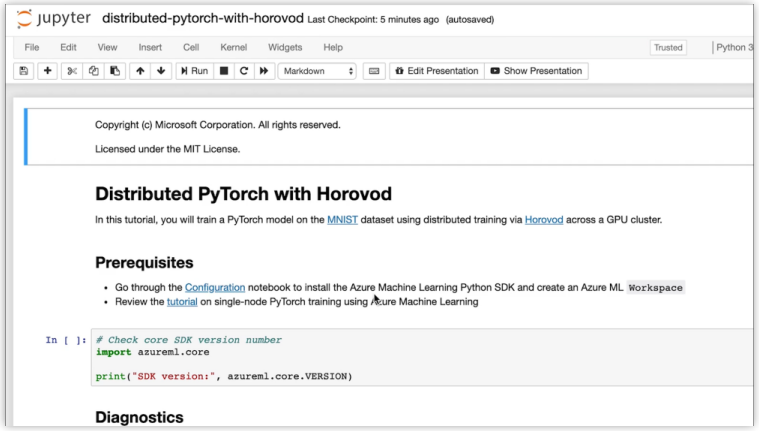
Simplify machine learning for any skill level



Automated machine learning UI



Visual interface



Machine learning notebooks

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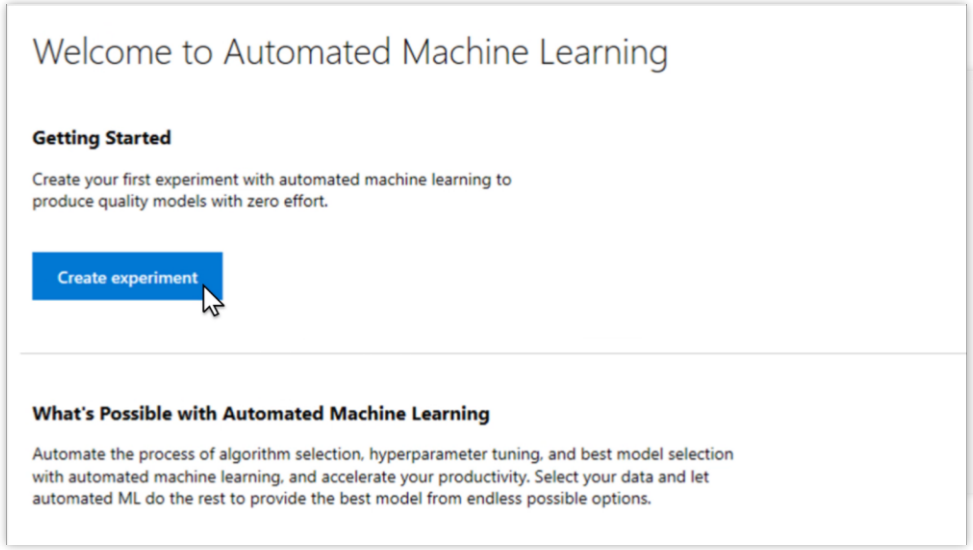
Simplify machine learning for any skill level



Automated
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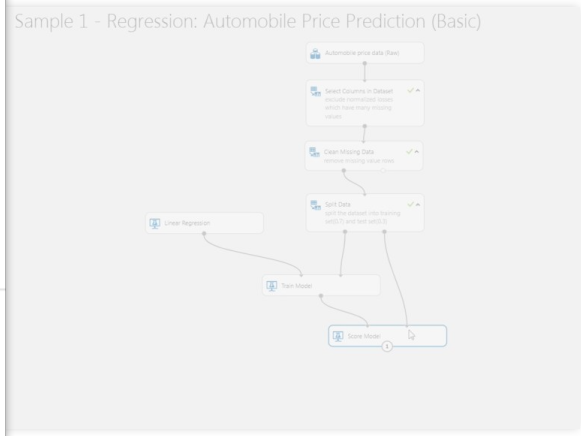
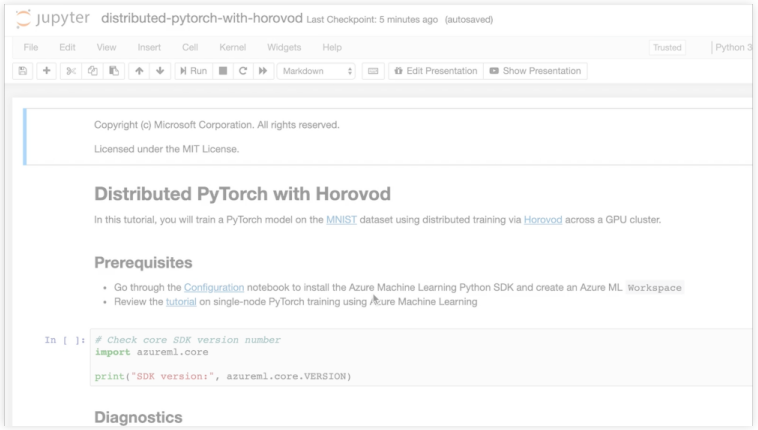


Visual interface



Machine learning notebooks

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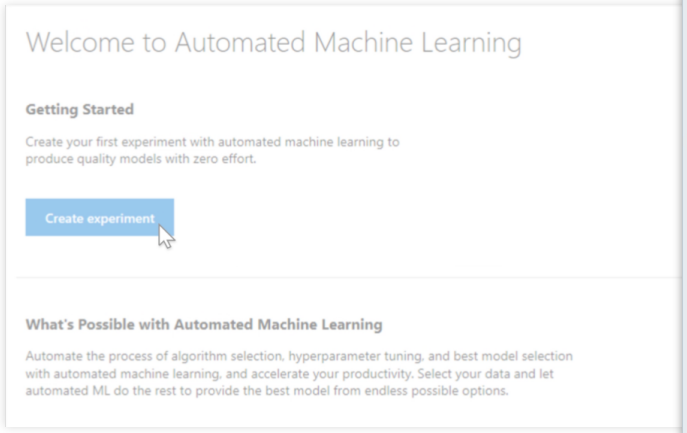
Simplify machine learning for any skill level



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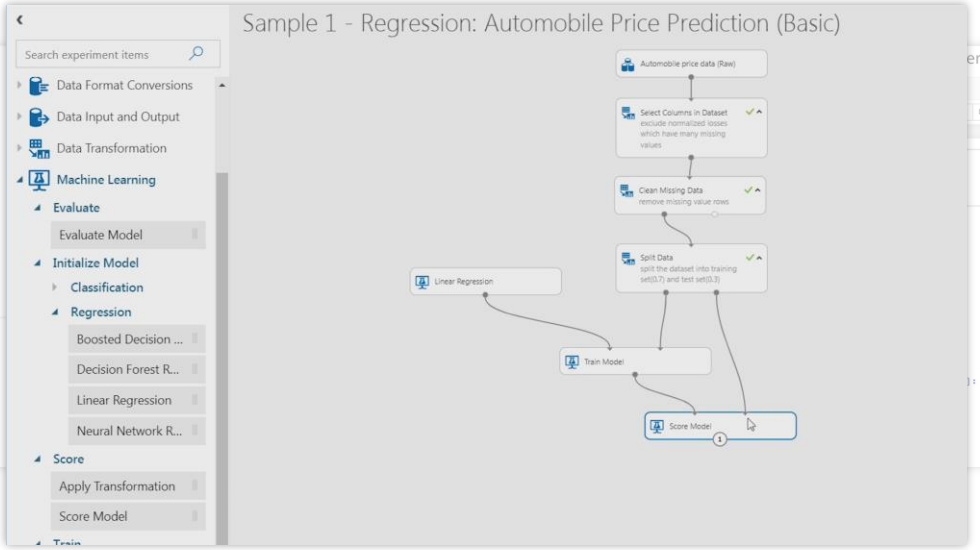
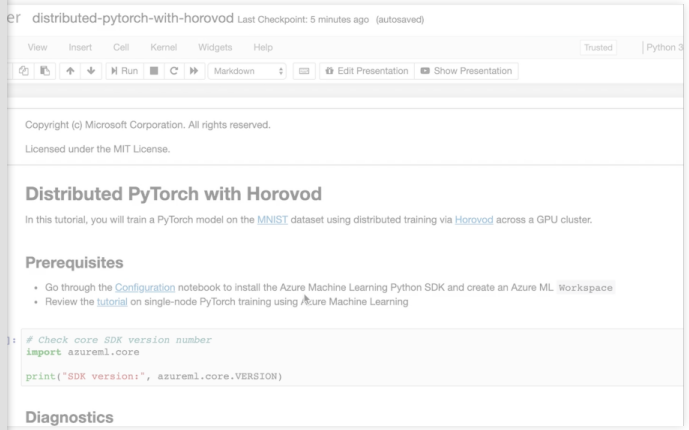


Visual interface



Machine learning notebooks

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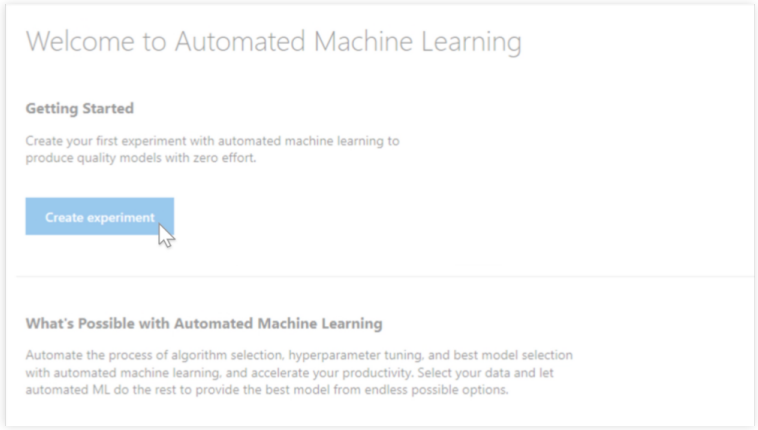
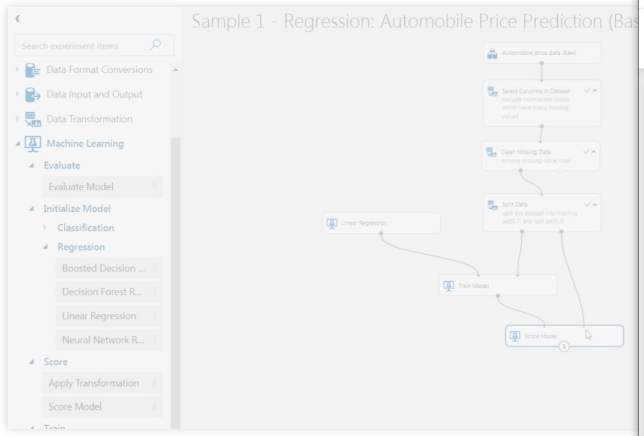
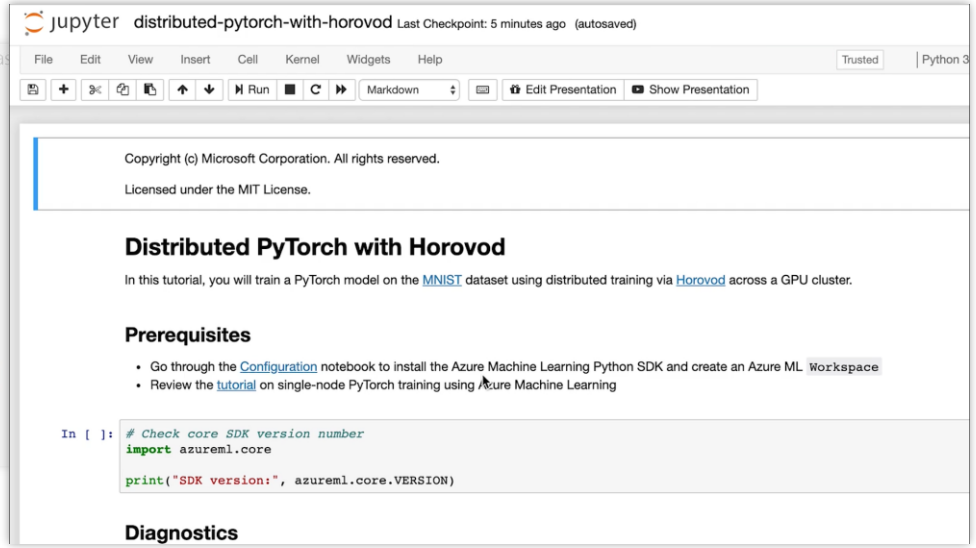
Simplify machine learning for any skill level



Automated
machine learning UI

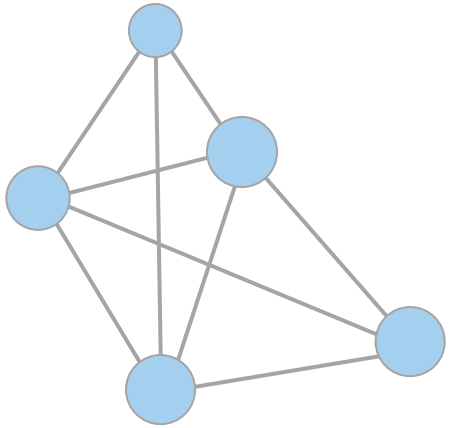


Visual interface

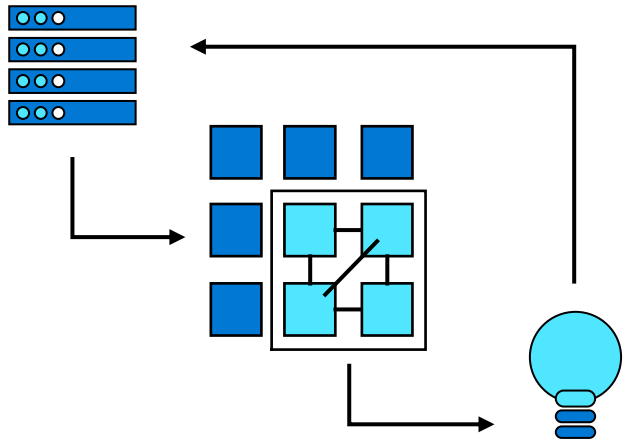


Machine learning notebooks

Azure Machine Learning Service



Simplified machine learning



End to end lifecycle management

DevOps

Code reproducibility

Code testing

App deployment

MLOps

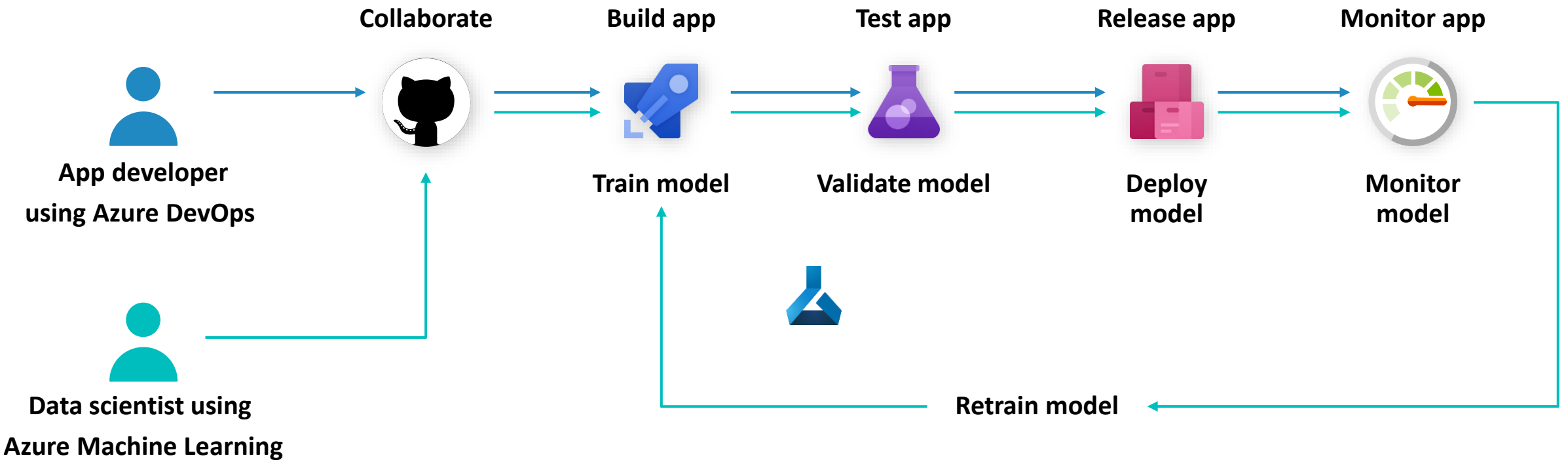
Model reproducibility

Model validation

Model deployment

Model retraining

MLOPS with Azure Machine Learning



- Model reproducibility
- Model validation
- Model deployment
- Model retraining

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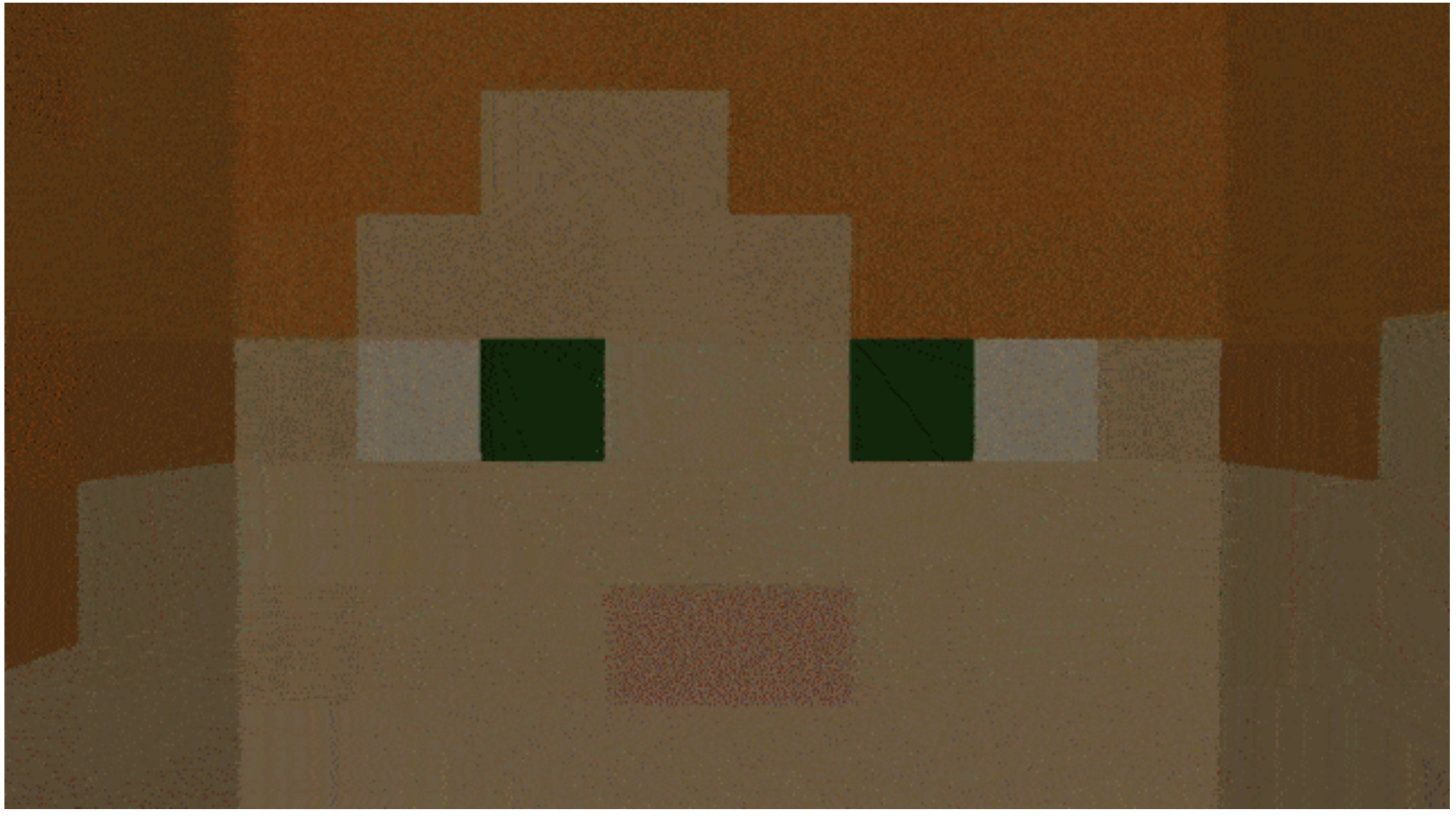
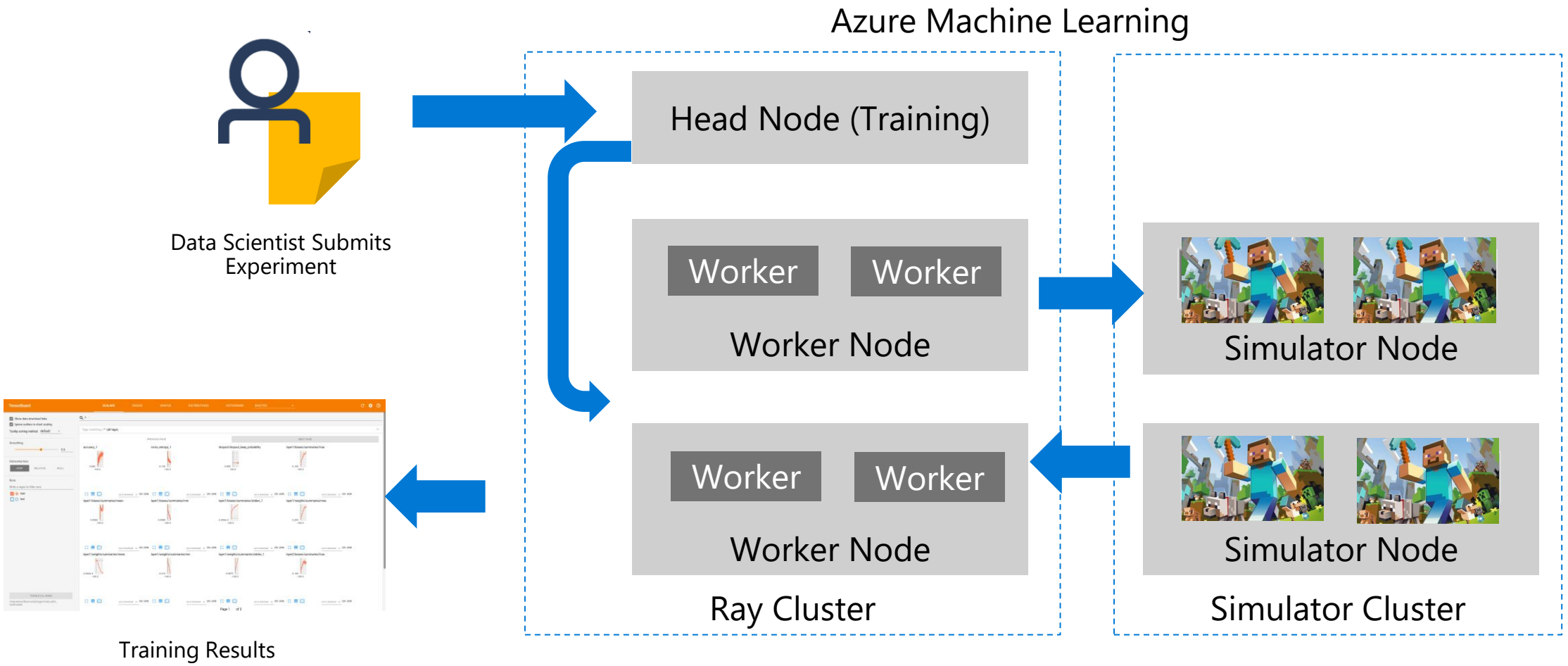
Learning RL with Minecraft on Azure

Goal: getting the Agent out of the maze



Training Agents on Azure Machine Learning



https://aka.ms/MinecraftRLDemo

On the right, you can see a video of the agent while he is training.

You can test your own Minecraft RL experiment using Azure Machine Learning Service.

Have fun ☺

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