

Visual Studio Tools for AI



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Agenda

- Intro to VS Tools for AI
- MS AI Platform Perspective
- Dependencies
- Demo 1: Samples Gallery
- Demo 2: MNIST DB (local)
- Demo 3: MNIST DB (remote)
- Demo 4: Model Consumption



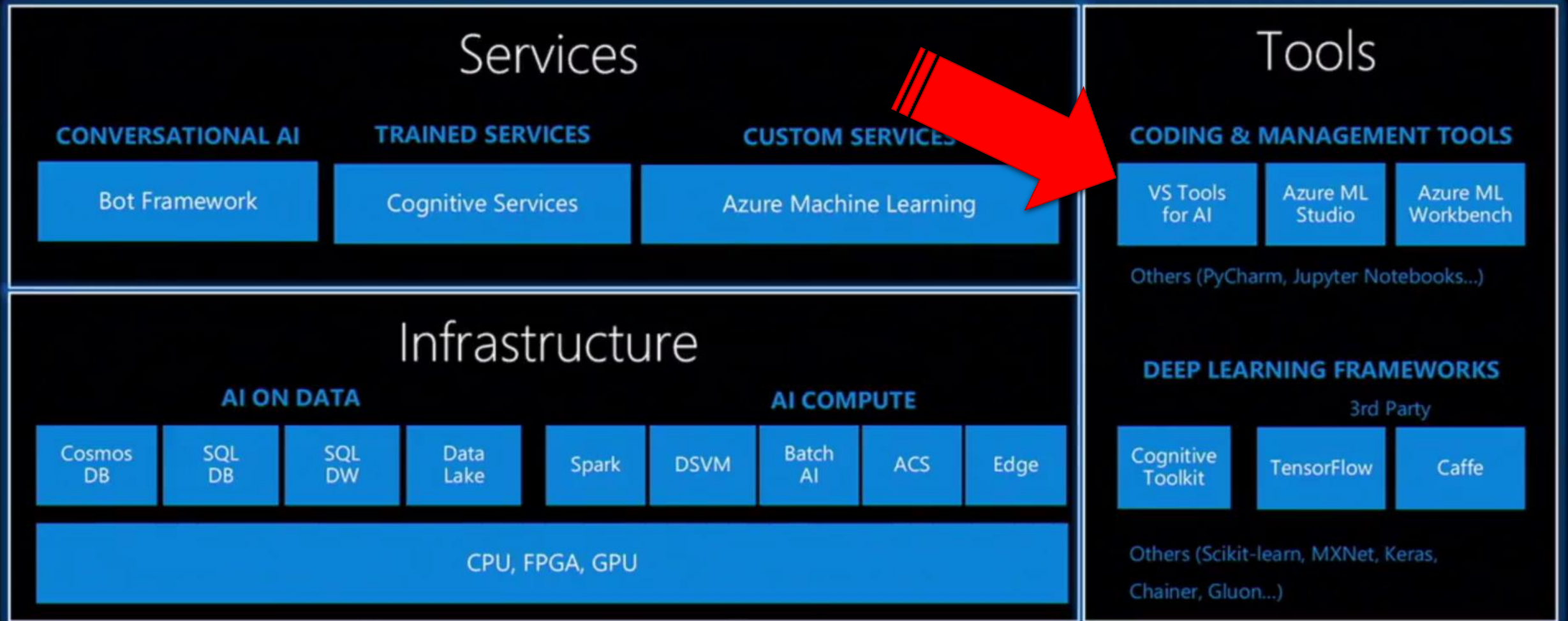
Visual Studio Tools for AI

- development extension for DL/AI solutions
- integrated with Azure Machine Learning
- samples explorer view
- provides an explorer for compute targets



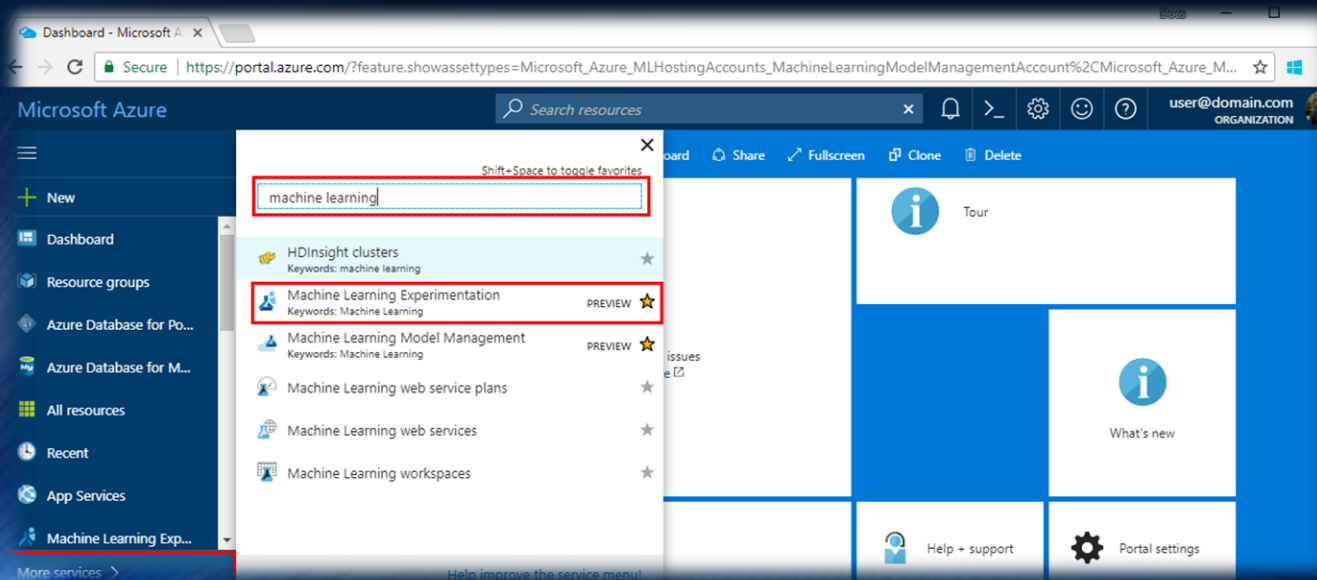
The Microsoft AI platform: Azure+AI

Cloud-powered AI for every developer



Dependencies

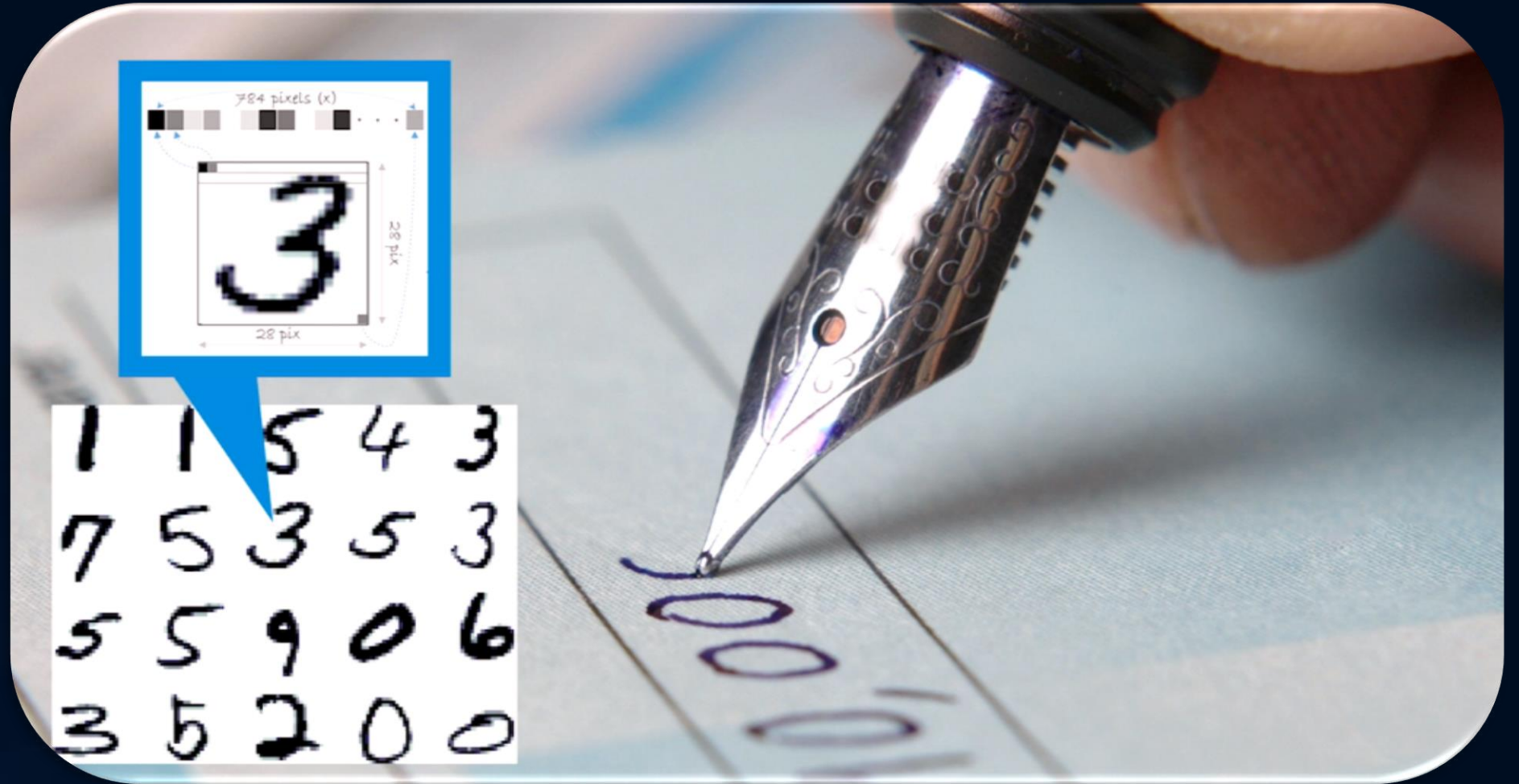
- VS Tools for AI extension
 - <https://tinyurl.com/vs-ai-ext>
- Azure Machine Learning Experimentation Account
 - <https://tinyurl.com/aml-exper>



Demo 1: AML Gallery



Demo 2: MNIST (local)



Data was loaded, do not need reload.
Selected CPU as the process wide default device.

Build info:

Built time: Dec 5 2017 18:19:12
Last modified date: Mon Nov 13 23:00:38 2017
Build type: Release
Build target: CPU-only
With 1bit-SGD: no
With ASGD: yes
Math lib: mkl
Build Branch: HEAD
Build SHA1: ce72a557b02b30a52c965a237b124688035f720f
MPI distribution: Microsoft MPI
MPI version: 7.0.12437.6

Training 98778 parameters in 10 parameter tensors.

Learning rate per 1 samples: 0.001

Momentum per 1 samples: 0.0

Finished Epoch[1 of 10]: [Training] loss = 1.790797 * 60000, metric = 32.48% * 60000 93.567s (641.3 samples/s);

Finished Epoch[2 of 10]: [Training] loss = 1.556777 * 60000, metric = 8.91% * 60000 67.891s (883.8 samples/s);

Finished Epoch[3 of 10]: [Training] loss = 1.524914 * 60000, metric = 6.01% * 60000 101.394s (591.8 samples/s);

Finished Epoch[4 of 10]: [Training] loss = 1.511352 * 60000, metric = 4.81% * 60000 81.897s (732.6 samples/s);

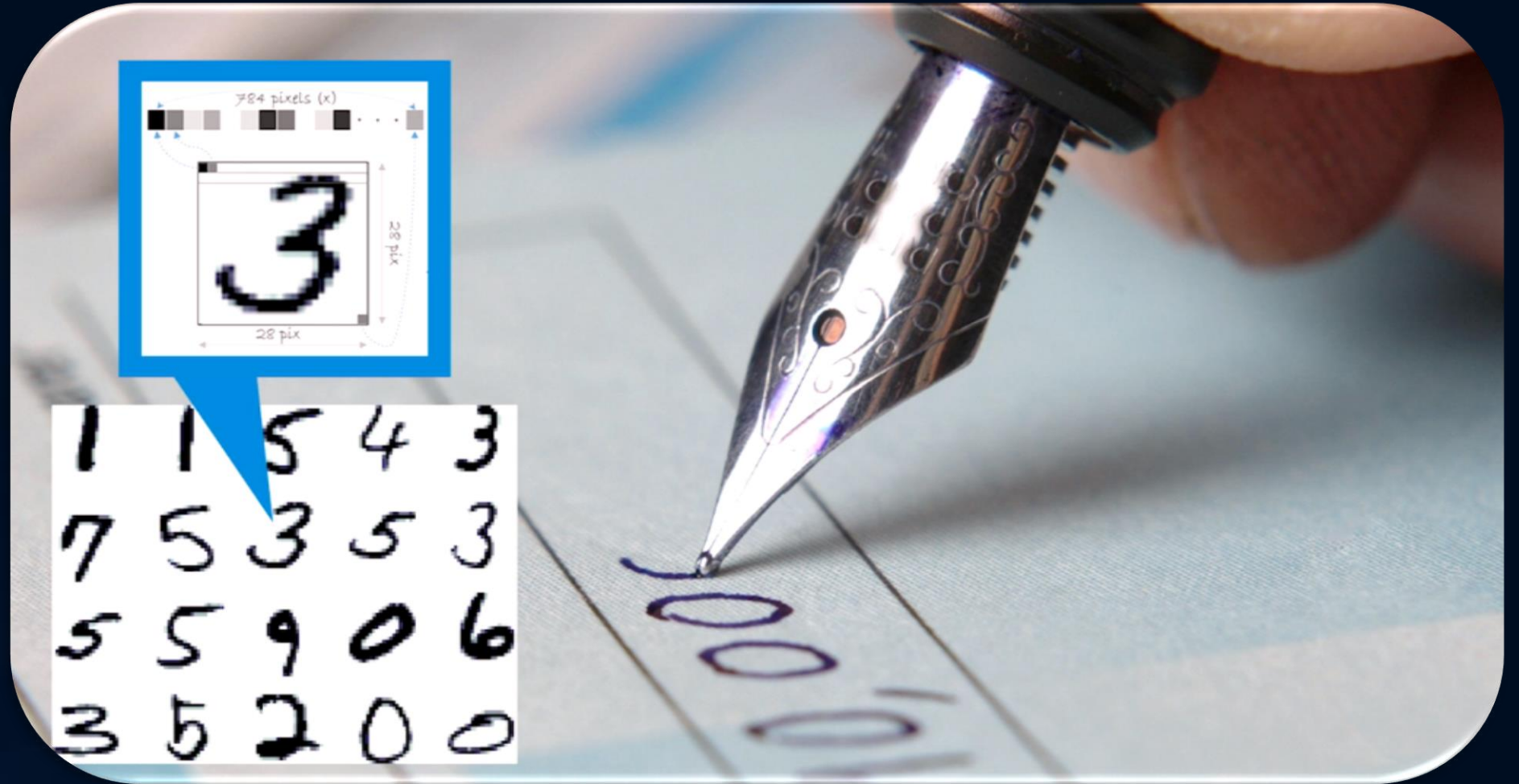
Finished Epoch[5 of 10]: [Training] loss = 1.504818 * 60000, metric = 4.21% * 60000 92.779s (646.7 samples/s);

Momentum per 1 samples: 0.9990239141819757

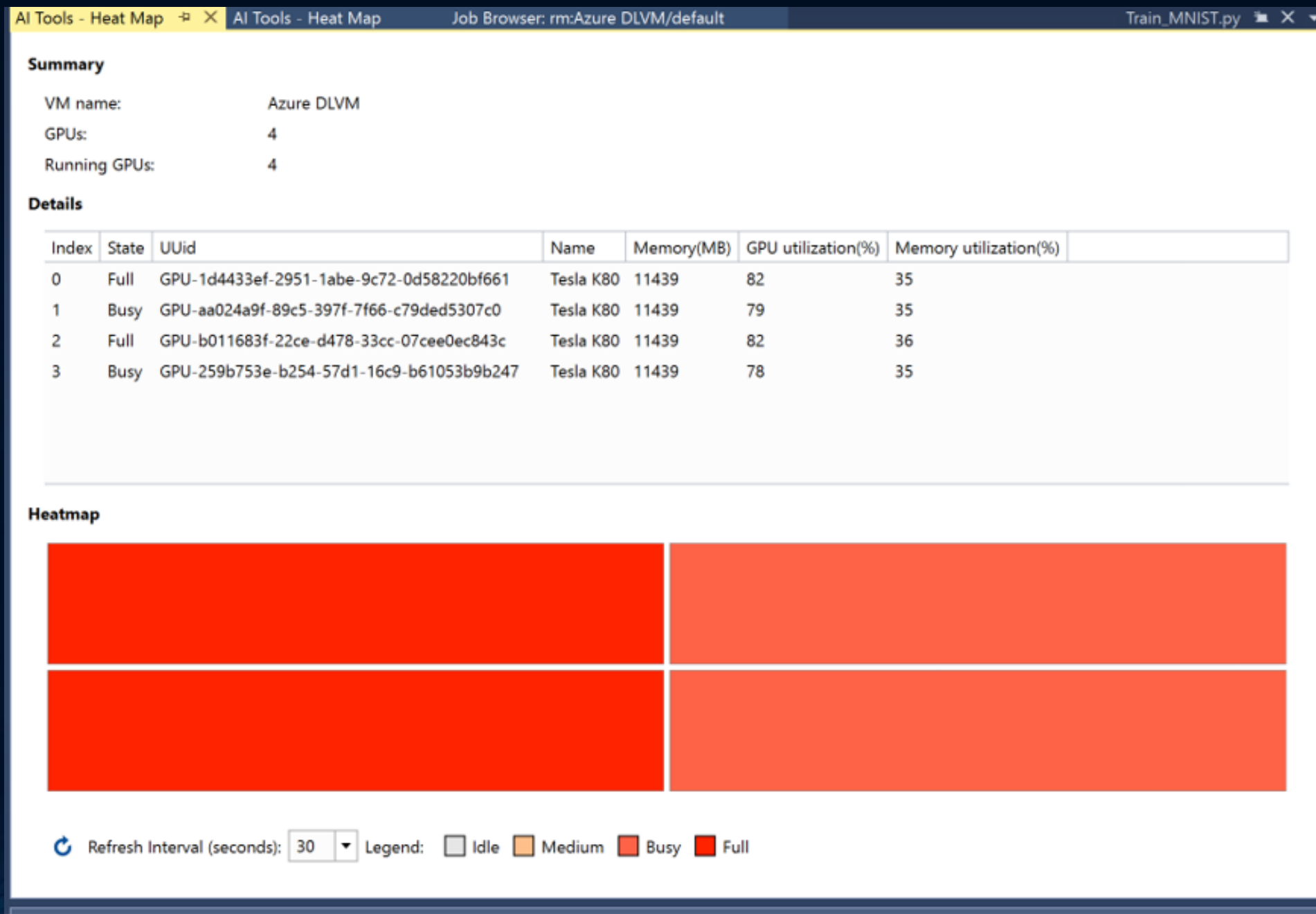
Finished Epoch[6 of 10]: [Training] loss = 1.500601 * 60000, metric = 3.98% * 60000 99.177s (605.0 samples/s);

Finished Epoch[7 of 10]: [Training] loss = 1.495707 * 60000, metric = 3.38% * 60000 95.144s (630.6 samples/s);

Demo 3: MNIST (remote)



Heat Map



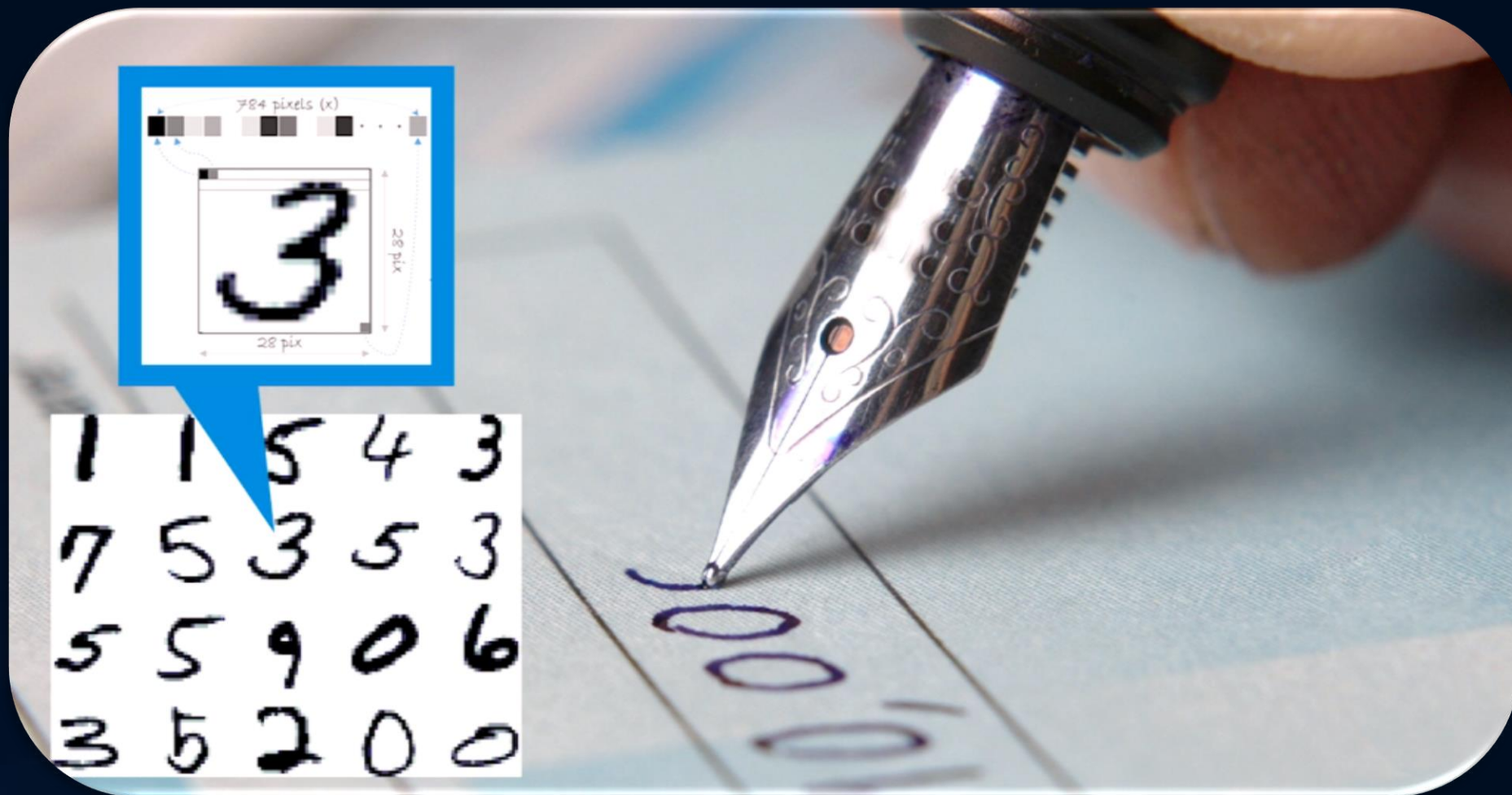


Deep Learning
Virtual Machine



Data Science
Virtual Machine

Demo 4: MNIST (model consumption)



VS Tools for AI QuickLinks

- Quickstarts and Tutorials
 - <https://github.com/Microsoft/vs-tools-for-ai>
- Digit Recognizer Demo
 - <https://tinyurl.com/digit-recognizer>
- Deep Learning Virtual Machine
 - <https://tinyurl.com/aml-dlvm>
- Data Science Virtual Machine (with Test Drive)
 - <http://aka.ms/dsvm/ubuntu>

