Serverless Deep Neural Network(DNN) with Azure Functions and ML.Net

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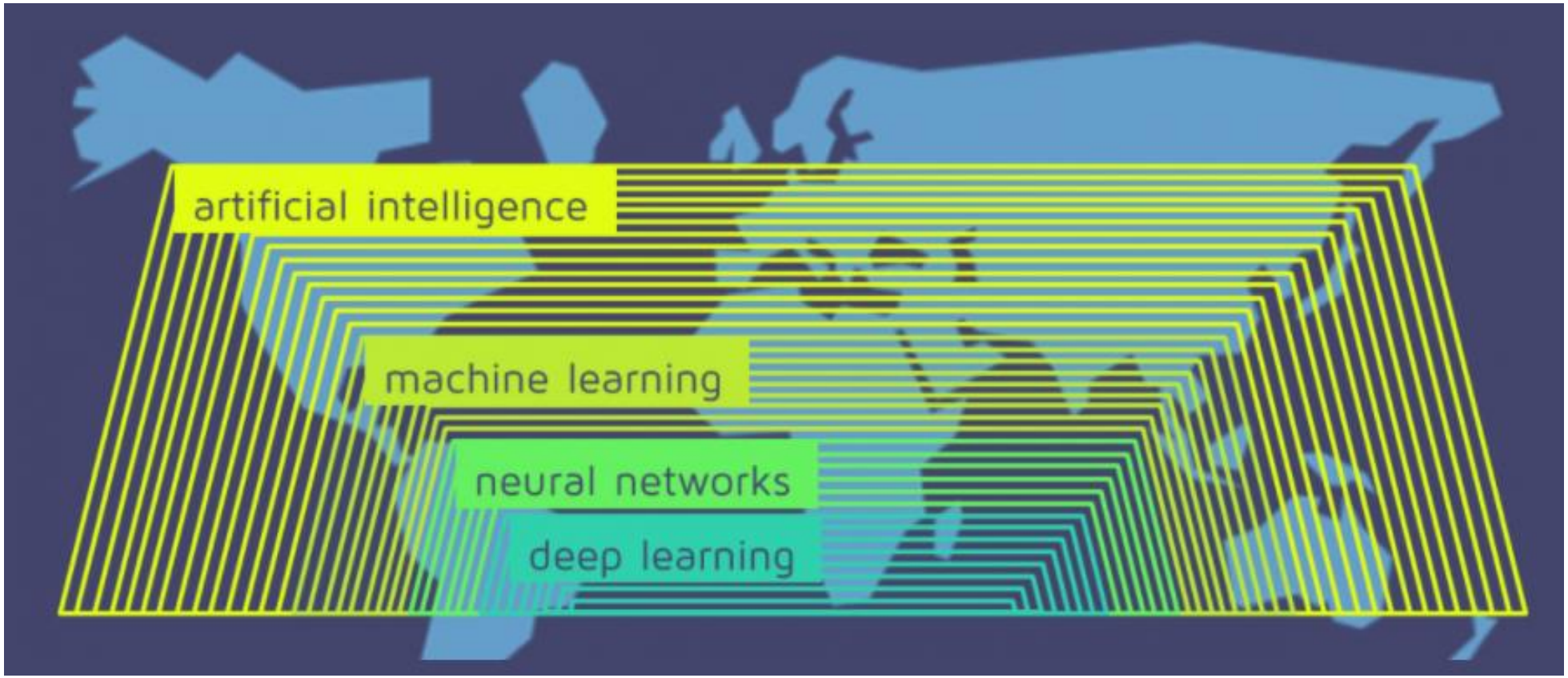
Introduction

- Cloud Architect @ Harman, A Samsung Company
- Domain: Professional Audio, Video & Control
- Area of Expertise: Cloud, Distributed computing
- Area of Interest: AI/ML, Cloud and IoT
- Location: Bangalore, India
- Member: .NET foundation

Agenda

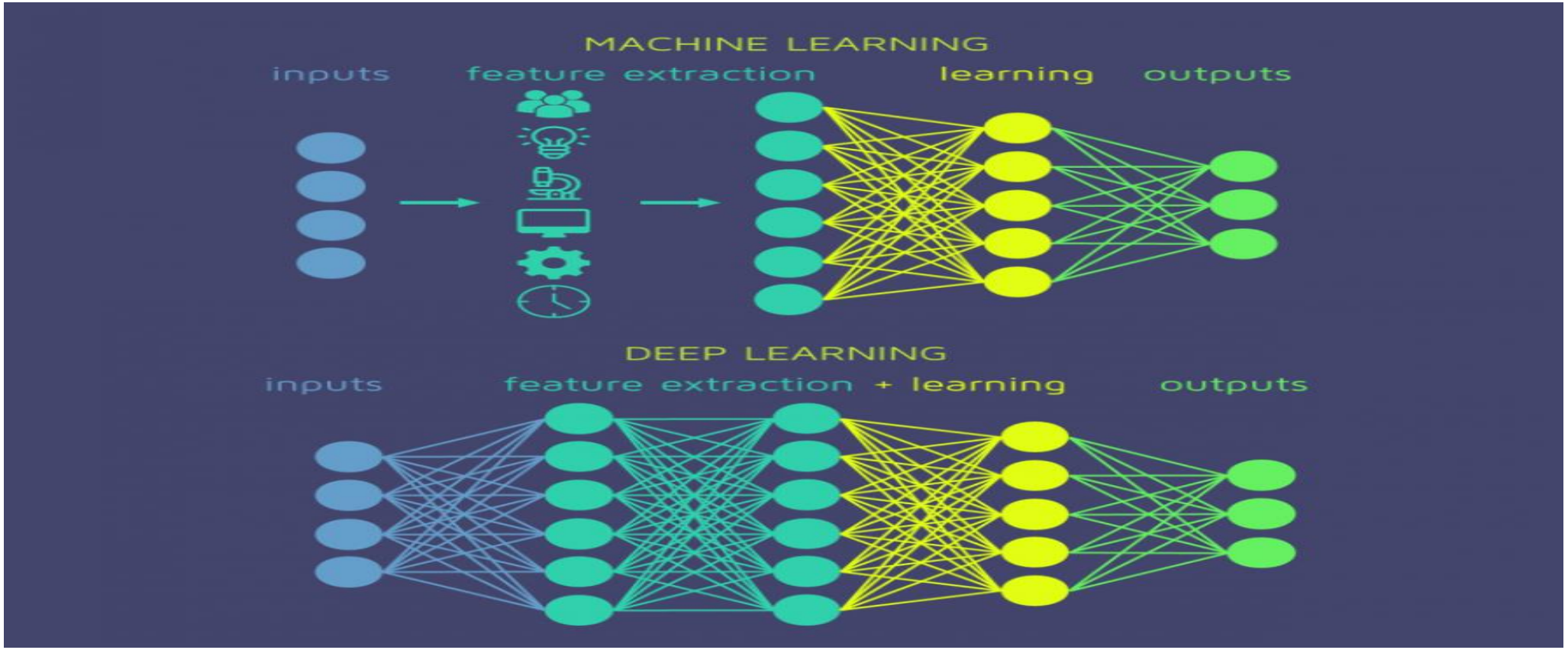
- Deep Neural Network
- Serverless
- Azure Functions
- ML.Net
- Demo

Deep Neural Network



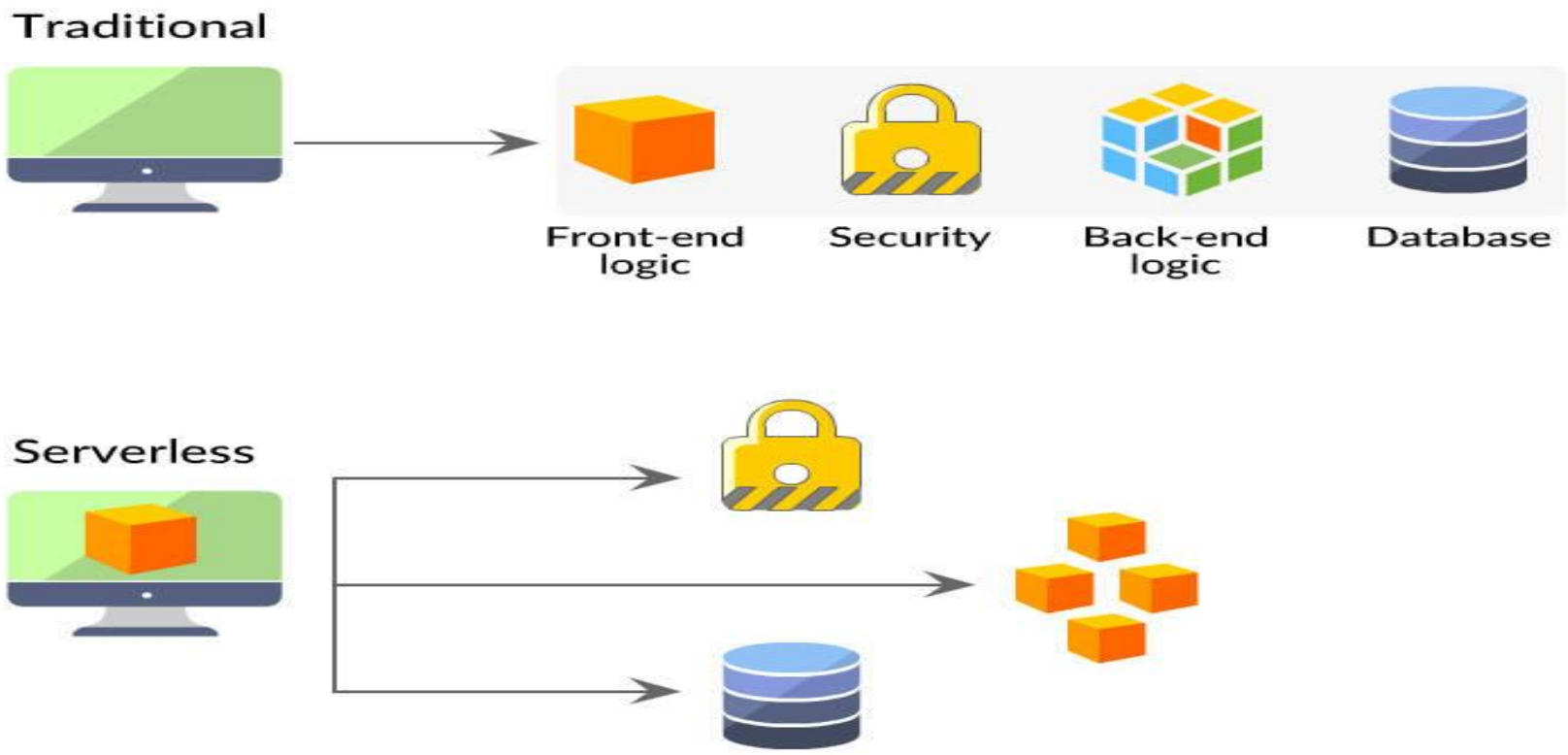
source: https://quantdare.com/what-is-the-difference-between-deep-learning-and-machine-learning/

Deep Neural Network



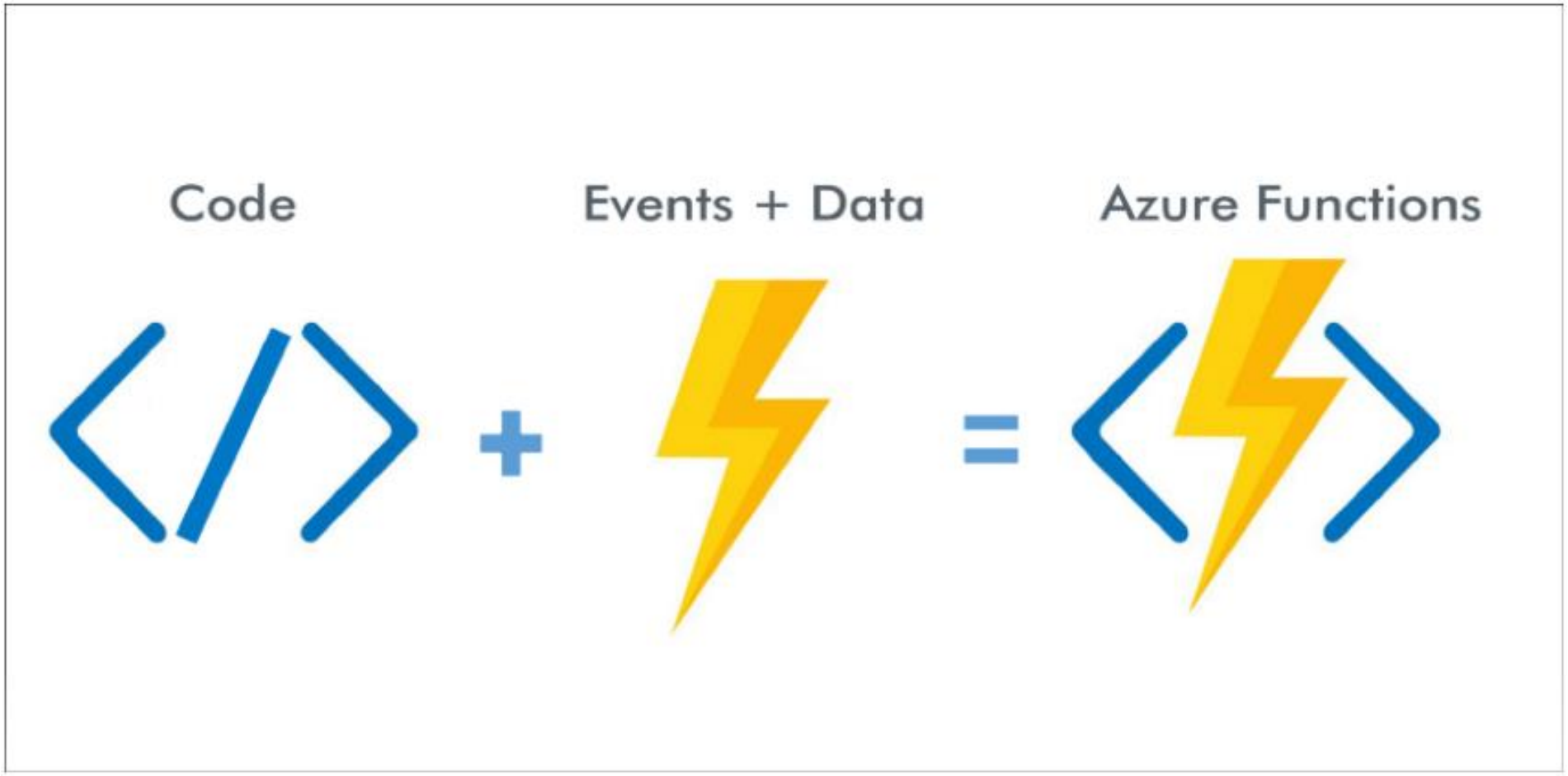
source: https://quantdare.com/what-is-the-difference-between-deep-learning-and-machine-learning/

Serverless

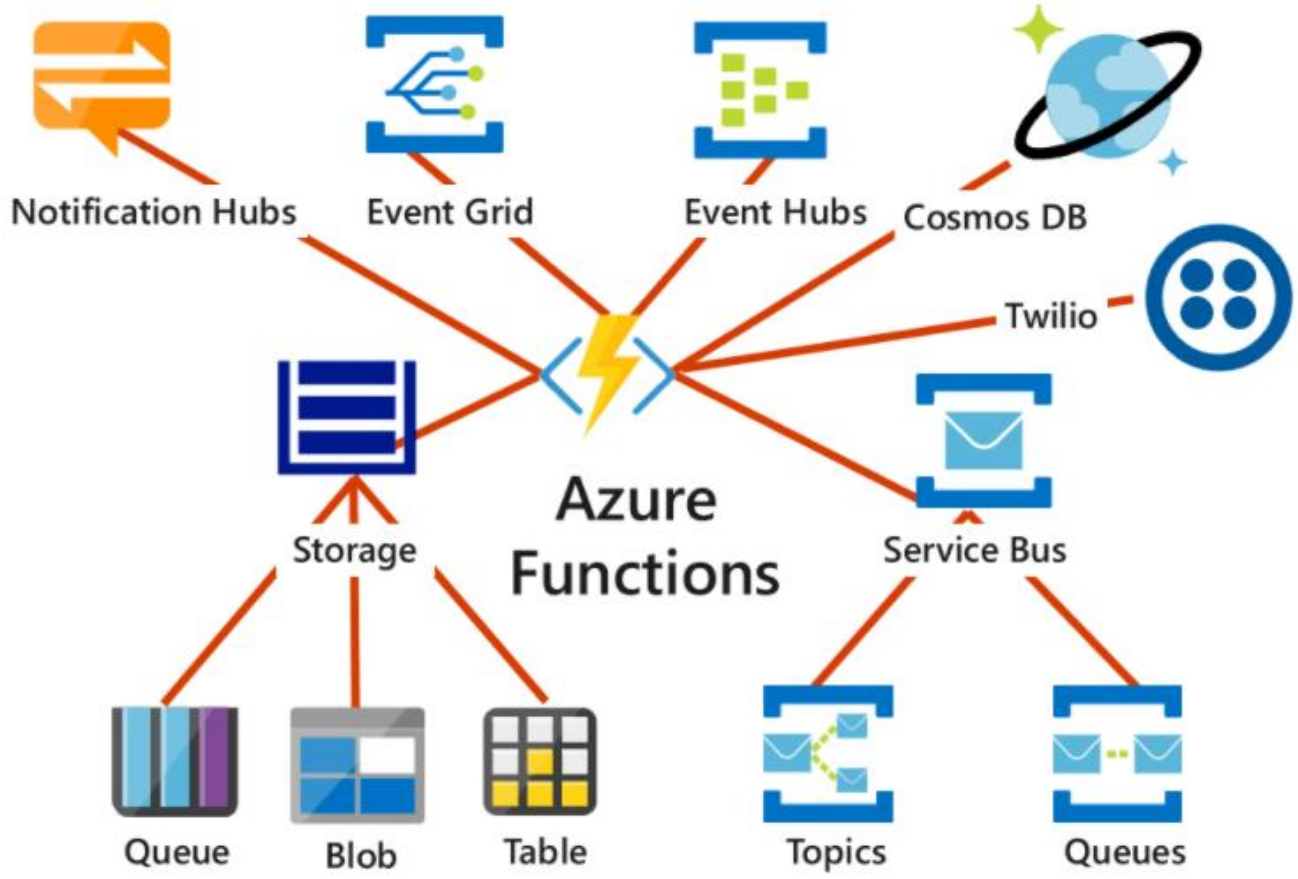


source: https://danielhkim.net/2020/02/27/serverless-cloud-computing/

Azure Functions



Azure Functions



ML.Net

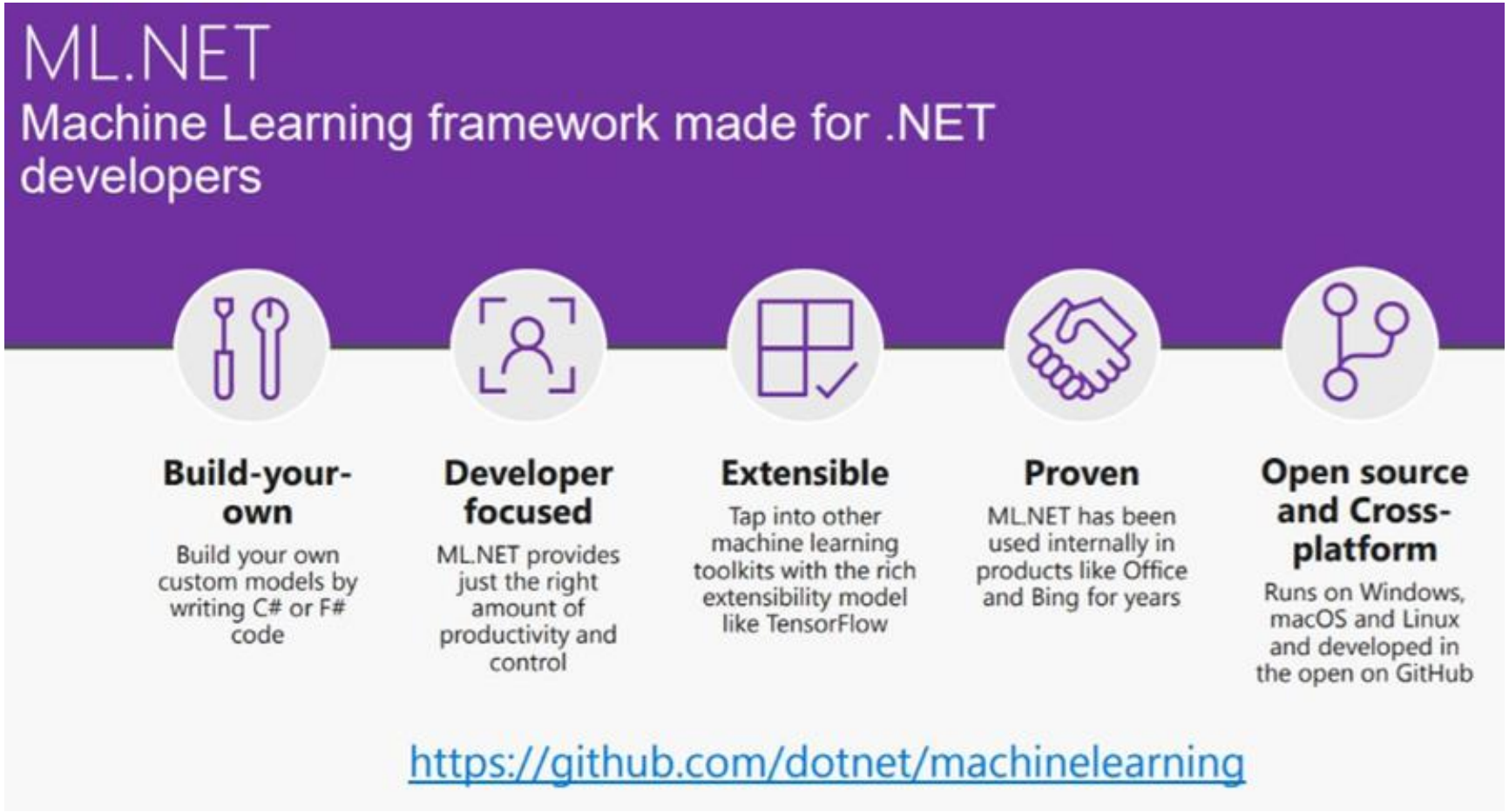
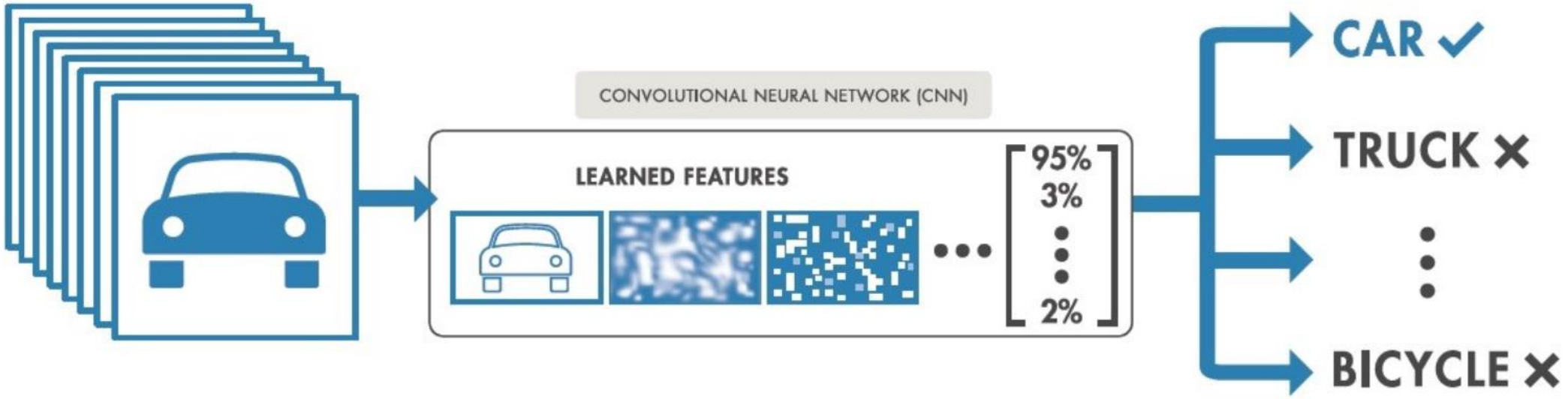
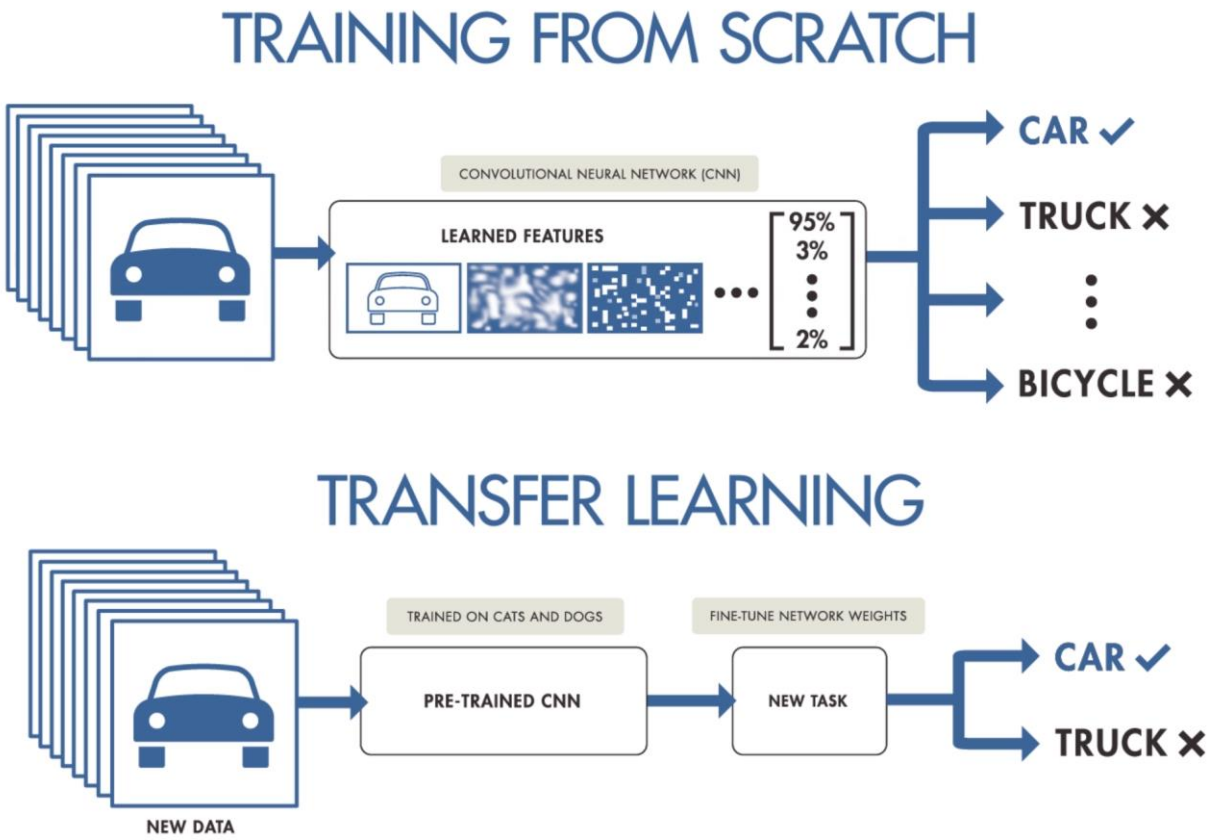

ML.NET
Machine Learning framework made for .NET developers
Build-your-own
Build your own custom models by writing C# or F# code
Developer focused
ML.NET provides just the right amount of productivity and control
Extensible
Tap into other machine learning toolkits with the rich extensibility model like TensorFlow
Proven
ML.NET has been used internally in products like Office and Bing for years
Open source and Cross-platform
Runs on Windows, macOS and Linux and developed in the open on GitHub
https://github.com/dotnet/machinelearning

Image Classification



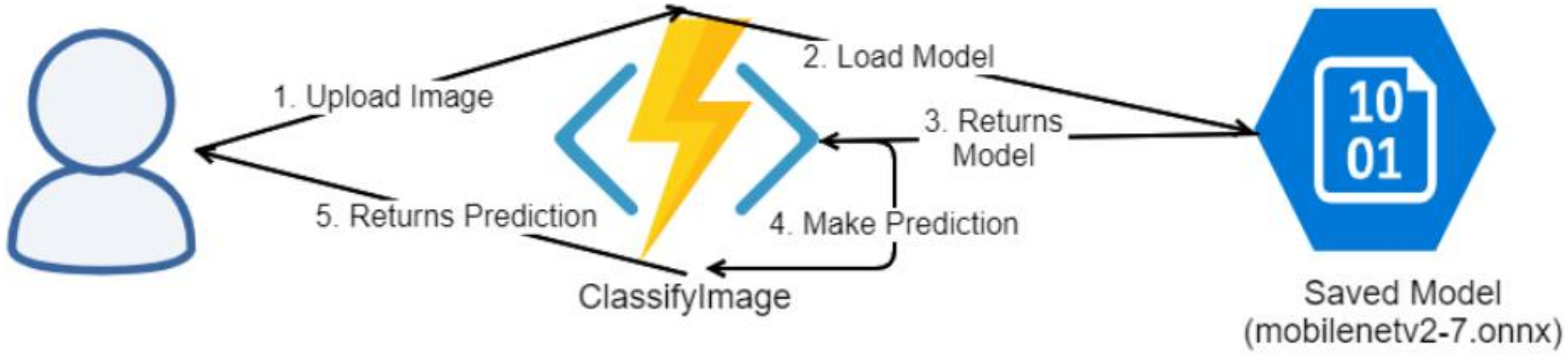
Source : MathWorks (https://goo.gl/zondfq)

Transfer Learning – MobileNet V2



source: https://i.pinimg.com/originals/0a/76/eb/0a76eb3c95c249cdff9449af08ac4efc.png

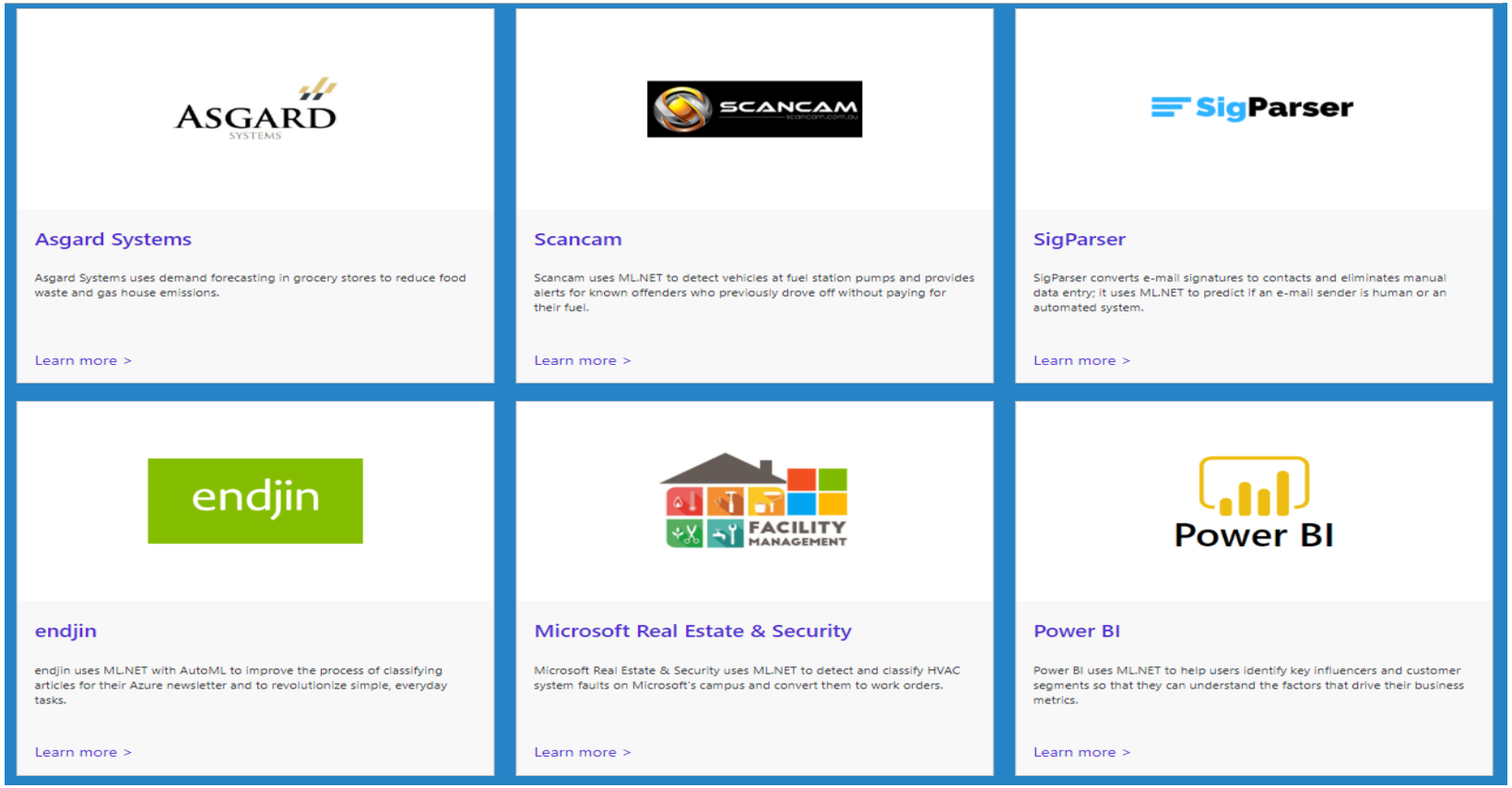
Cloud Architecture



AI Dev World

Demo

Customer Success Stories – ML.Net



https://dotnet.microsoft.com/apps/machinelearning-ai/ml-dotnet/customers

Resources

Github: https://github.com/praveenraghuvanshi/tech-sessions/tree/master/27102021-AI-Dev-World-2021

References

- https://docs.microsoft.com/en-us/azure/azure-functions/functions-develop-vs
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- https://docs.microsoft.com/en-us/dotnet/machine-learning/tutorials/image-classification
- https://docs.microsoft.com/en-us/samples/dotnet/machinelearning-samples/mlnet-image-classification-transfer-learning/
- https://docs.microsoft.com/en-us/dotnet/machine-learning/tutorials/object-detection-onnx

Thank you

Q & A

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https://t.me/joinchat/IifUJQ_PuYT757Turx-nLg