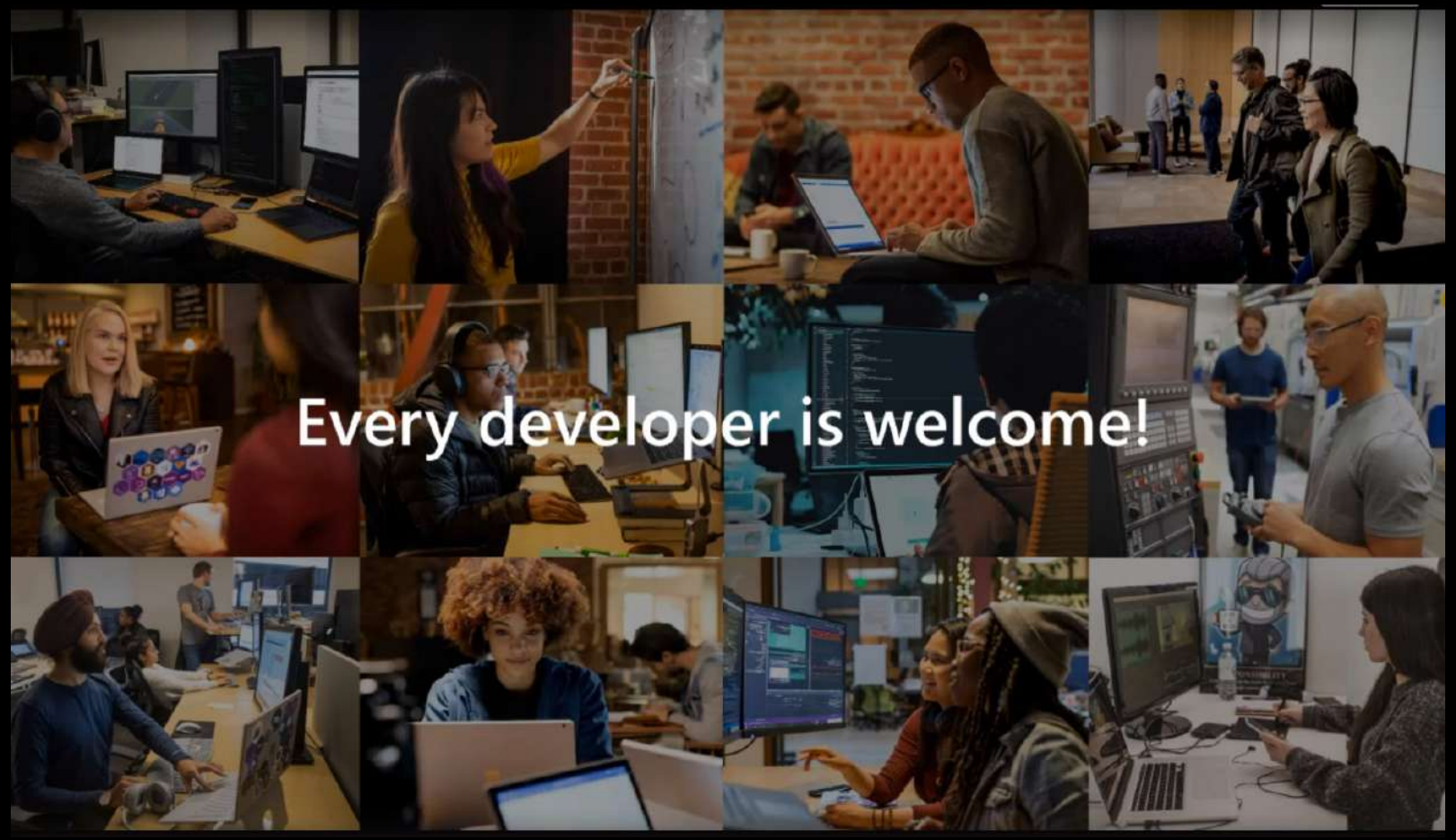
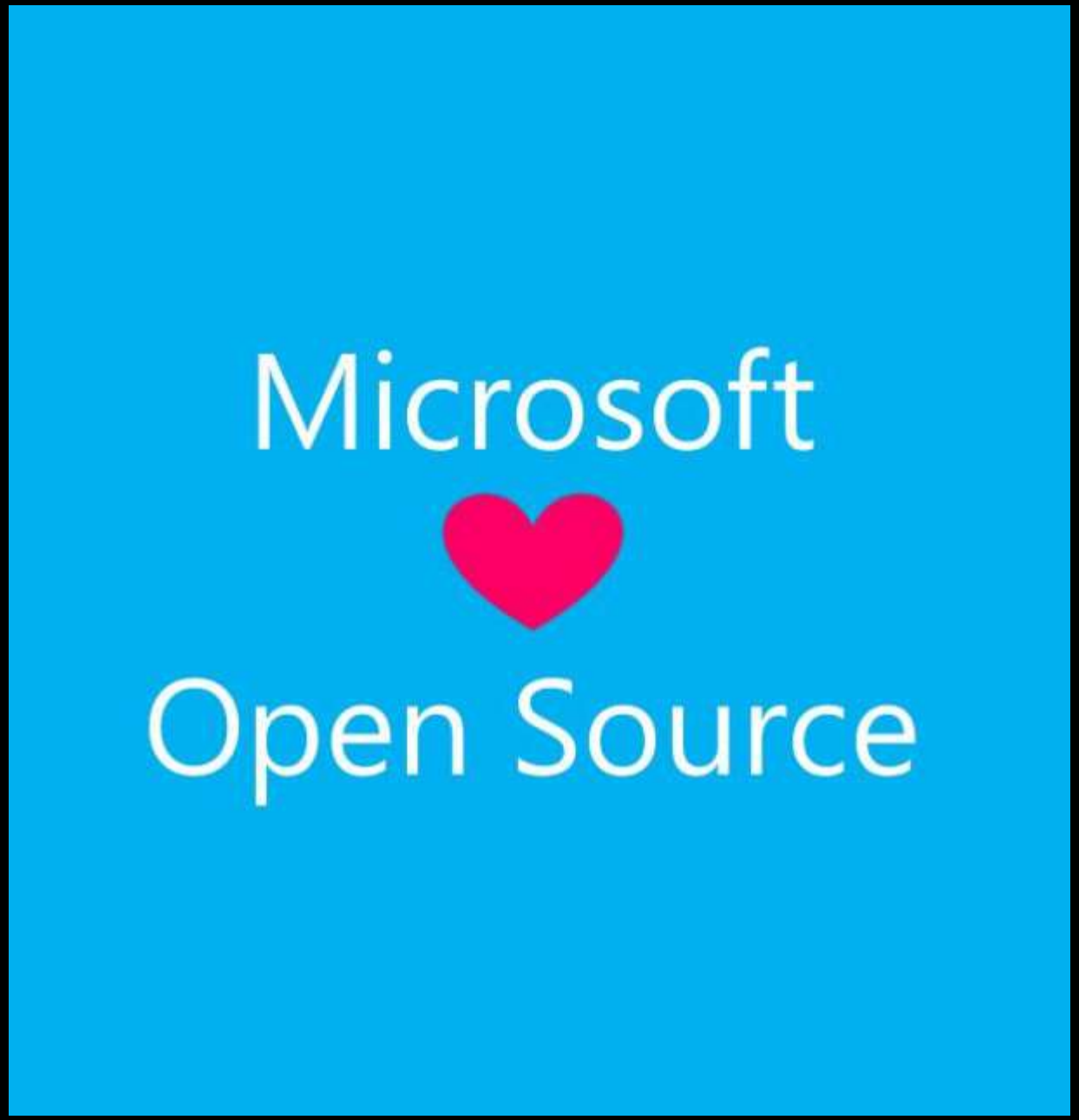
Microsoft

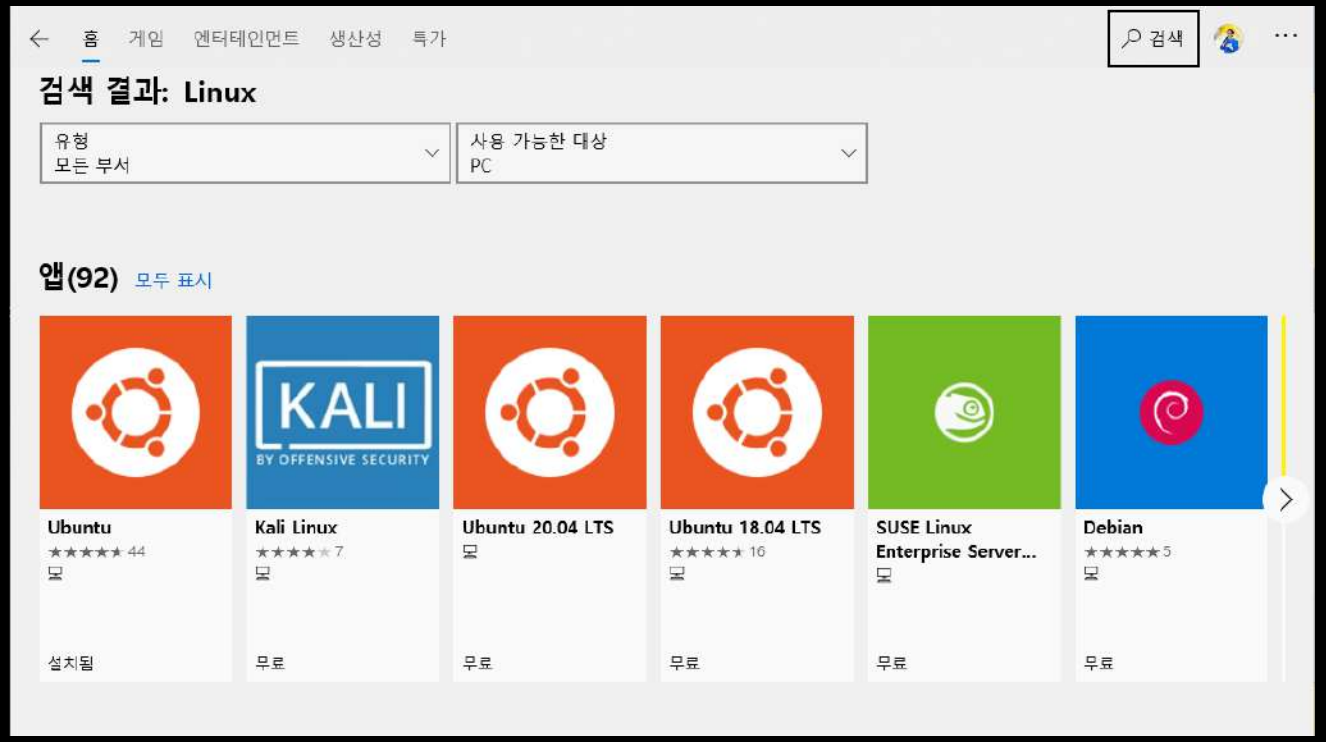
오픈 소스와 개발 환경



한국 Microsoft
최주열 이사

마이크로소프트와 오픈 소스





Microsoft: We were wrong about open source

Microsoft president and chief legal counsel Brad Smith has taken his turn at admitting Microsoft's former stance on open source put it on the "wrong side of history". In 2001 former Microsoft CEO Steve Ballmer famously said, "Linux is cancer that attaches itself in an intellectual property sense to everything it touches." Shortly after that and for the same reason, Microsoft co-founder Bill Gates described the open-source GPL (GNU General Public License) as "Pac-Man-like". Ballmer has since made peace with open source, and now

Microsoft ❤ Linux

연도/월	Azure 내 Linux OS 비율 (%)
2019년 6월	**>50%**
2018년 9월	**~50%**
2017년 10월	**~40%**
2015년 10월	**~25%**

Microsoft ♥ Open Source

2012

TypeScript 출시

Visual Studio 및 팀 파운데이션 서버에서 Git 지원 추가

2014

Satya 회장: “Microsoft loves Linux”

GitHub에 Microsoft 조직 생성

.NET Foundation 설립

2015

Visual Studio Code 출시

HDInsight (Hadoop/ Ubuntu) 발표

Microsoft: Node.js Foundation 공동으로 구성 & 참여

2016

.NET Core 1.0

PowerShell Core

Windows 10 내 Linux를 위한 Windows Subsystem

Microsoft: Linux Foundation 가입

GitHub에서 Microsoft가 최대 오픈 소스 컨트리뷰터 회사로 인정

2017

Microsoft Azure Kubernetes Service 출시 & 시작

Kubernetes 커뮤니티에 Draft, Brigade, Kashti 프로젝트를 제출

Microsoft: Cloud Native Computing & Cloud Foundry Foundation에 가입

SQL 2017 on Linux

Windows 소스 코드를 Git로 이동

Azure Databricks (Apache Spark) 발표

2018

Visual Studio Code: 개발자 도구 1위로 선정

Azure Service Fabric 오픈 소스화

Linux 커널로 동작하는 Azure Sphere

GitHub 인수 의사를 공식 발표

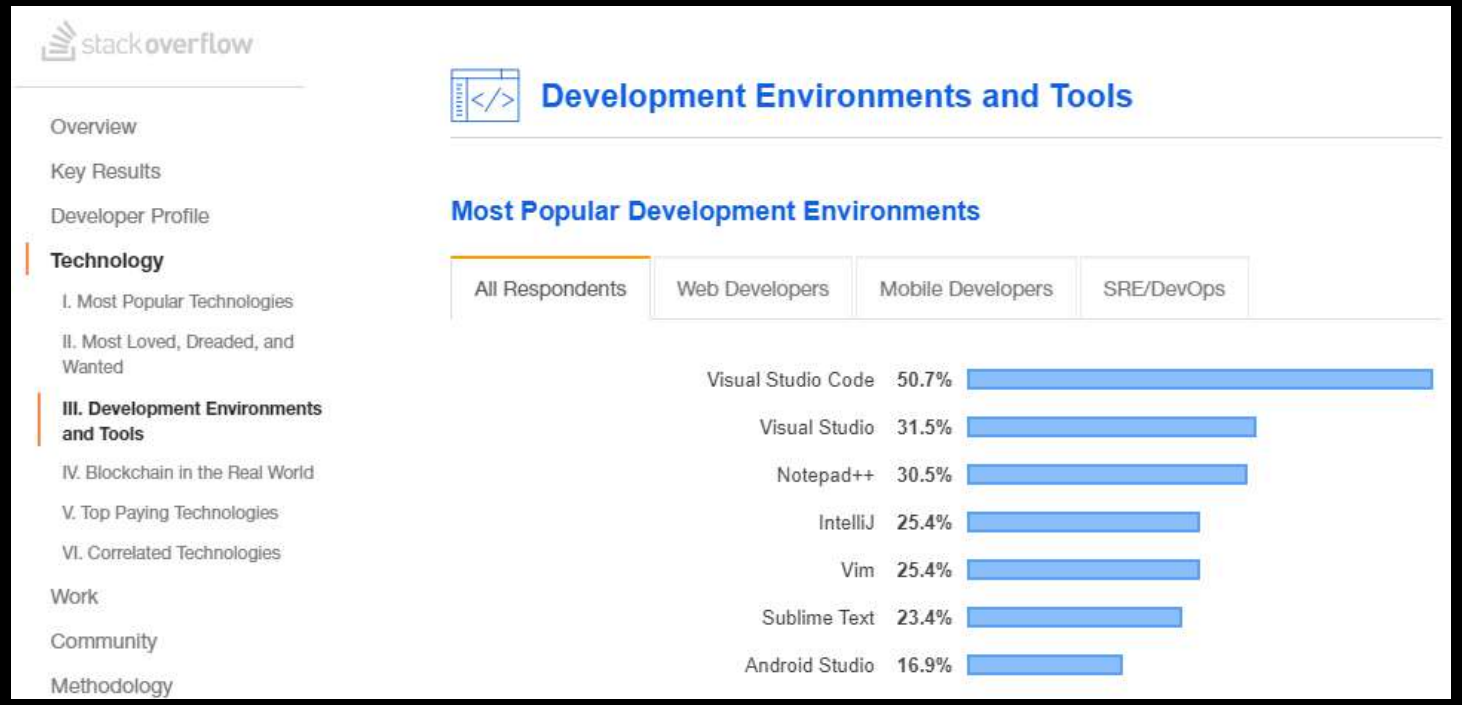
약 5,000명의 Microsoft 직원이 GitHub에 오픈 소스 프로젝트 커밋 활동

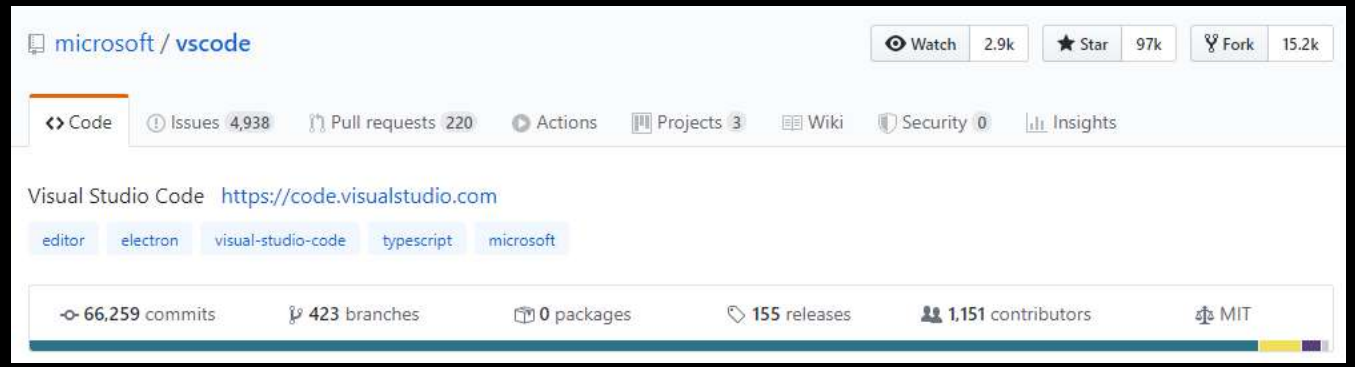
Azure: 거의 절반이 Linux로 구성

GitHub에 오픈 소스 프로젝트를 기여하는 최대 컨트리뷰터 회사로 계속 자리매김

2012 2014 2015 2016 2017 2018

VSCode: 가장 많이 사용하는 오픈 소스 개발 환경 도구



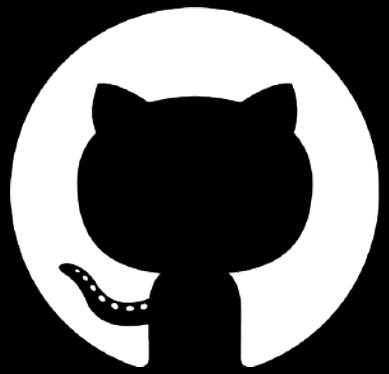


insights.stackoverflow.com/survey/2019/#development-environments-and-tools / github.com/Microsoft/vscode

GitHub

50M

developers



The largest developer community on the planet

36M+ developers

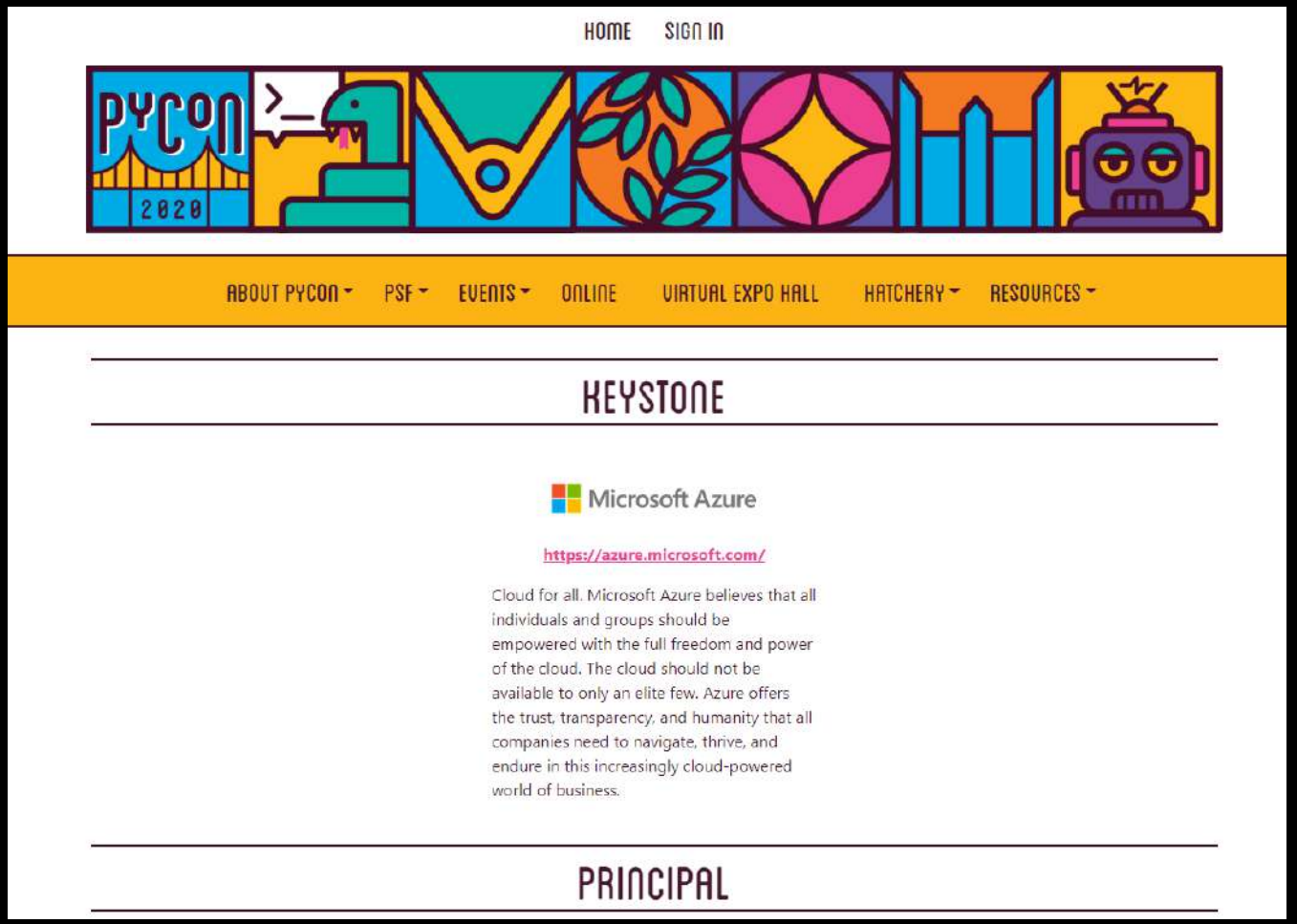
100M+ repositories

1.1B+ contributions

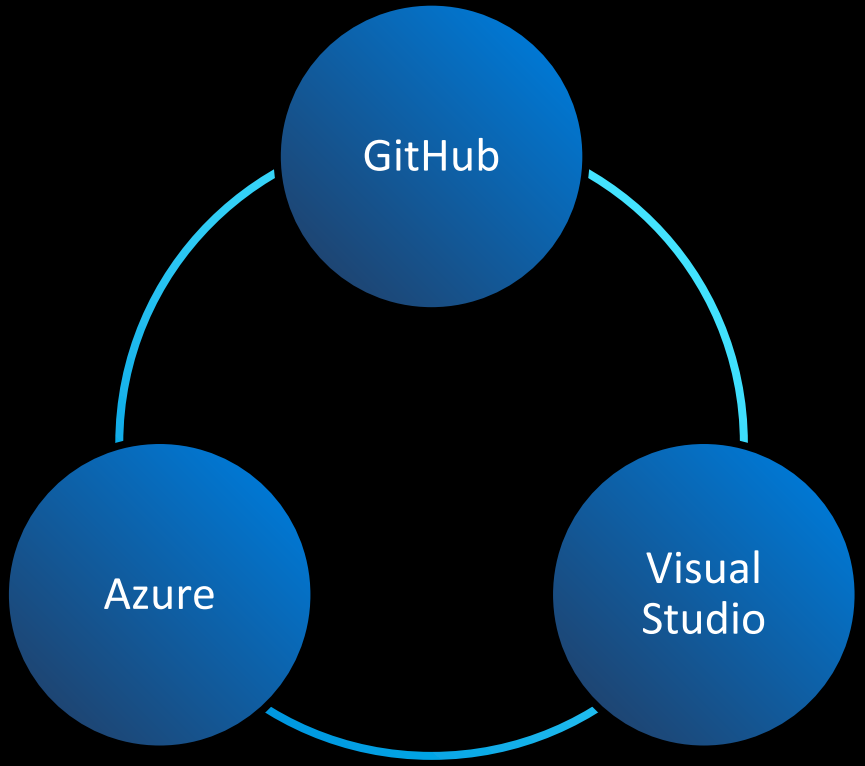
커뮤니티와 함께 하는 마이크로소프트

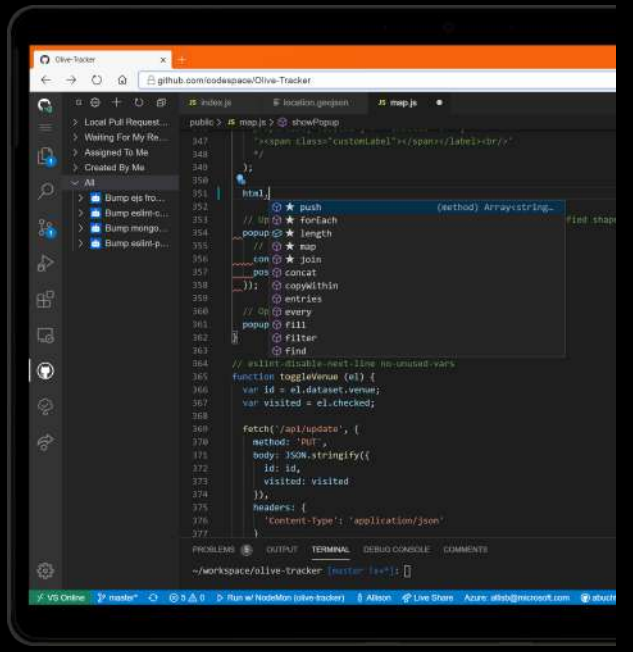
KubeCon 2019 (11/18-21)

PyCon US 2020 (4/15-23)



Build 2020 하이라이트



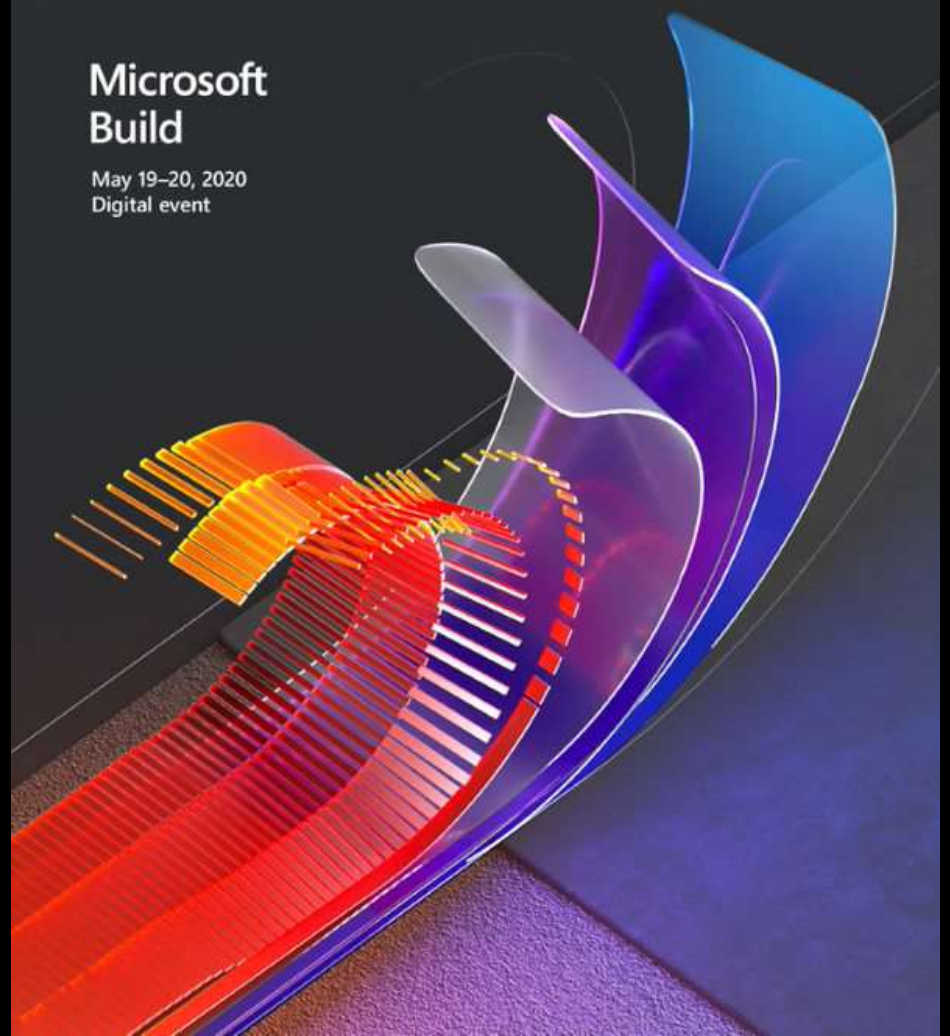


Microsoft

Learn. Connect. Code.

Microsoft Build

May 19–20, 2020
Digital event



Microsoft

Microsoft Build

May 6–8, 2019

Preview

Microsoft Build 2020 developer keynote

Leave

PowerPoint Slide Show - Build 2020 ScottHa Keynote Deck.pptx - PowerPoint

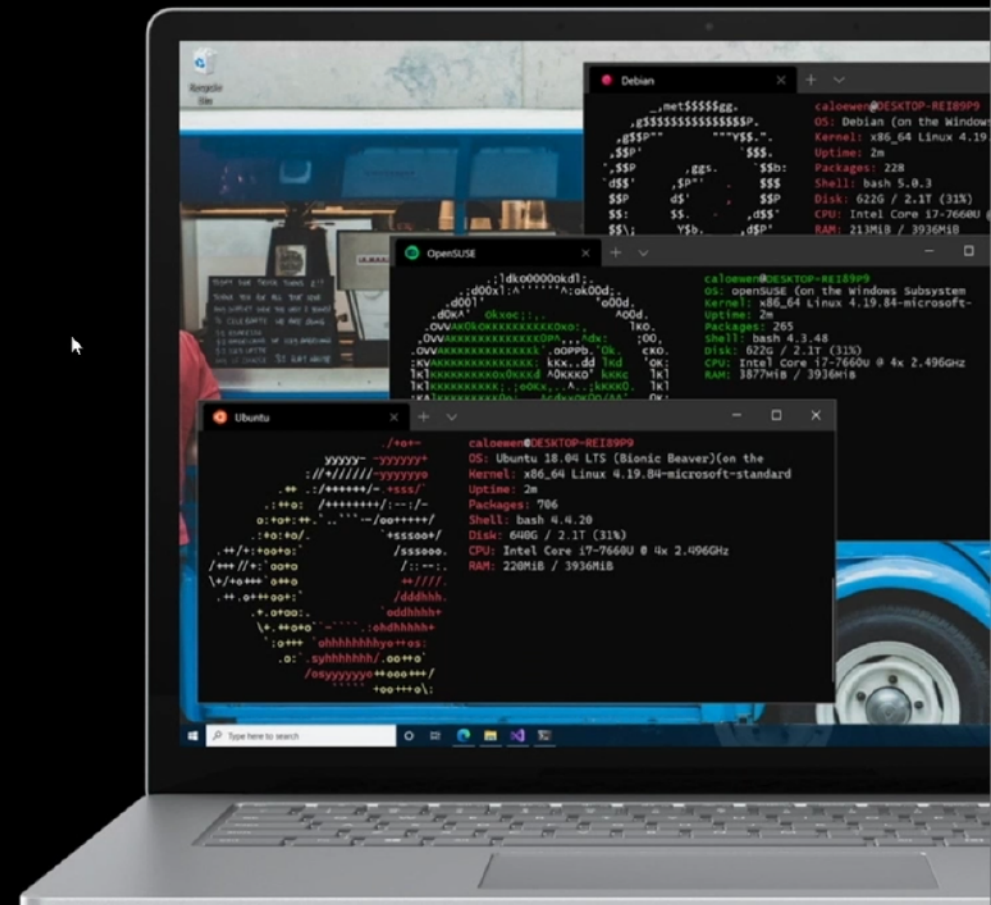
Windows Subsystem for Linux

Near-native Linux performance with a real Linux kernel

Preview: Hardware accelerated workloads via GPU

WSL2 available today

aka.ms/wsl



Windows Terminal

Optimize workflows with tabs and panes

Fully customizable and open source

Windows Terminal 1.0 available today

aka.ms/terminal

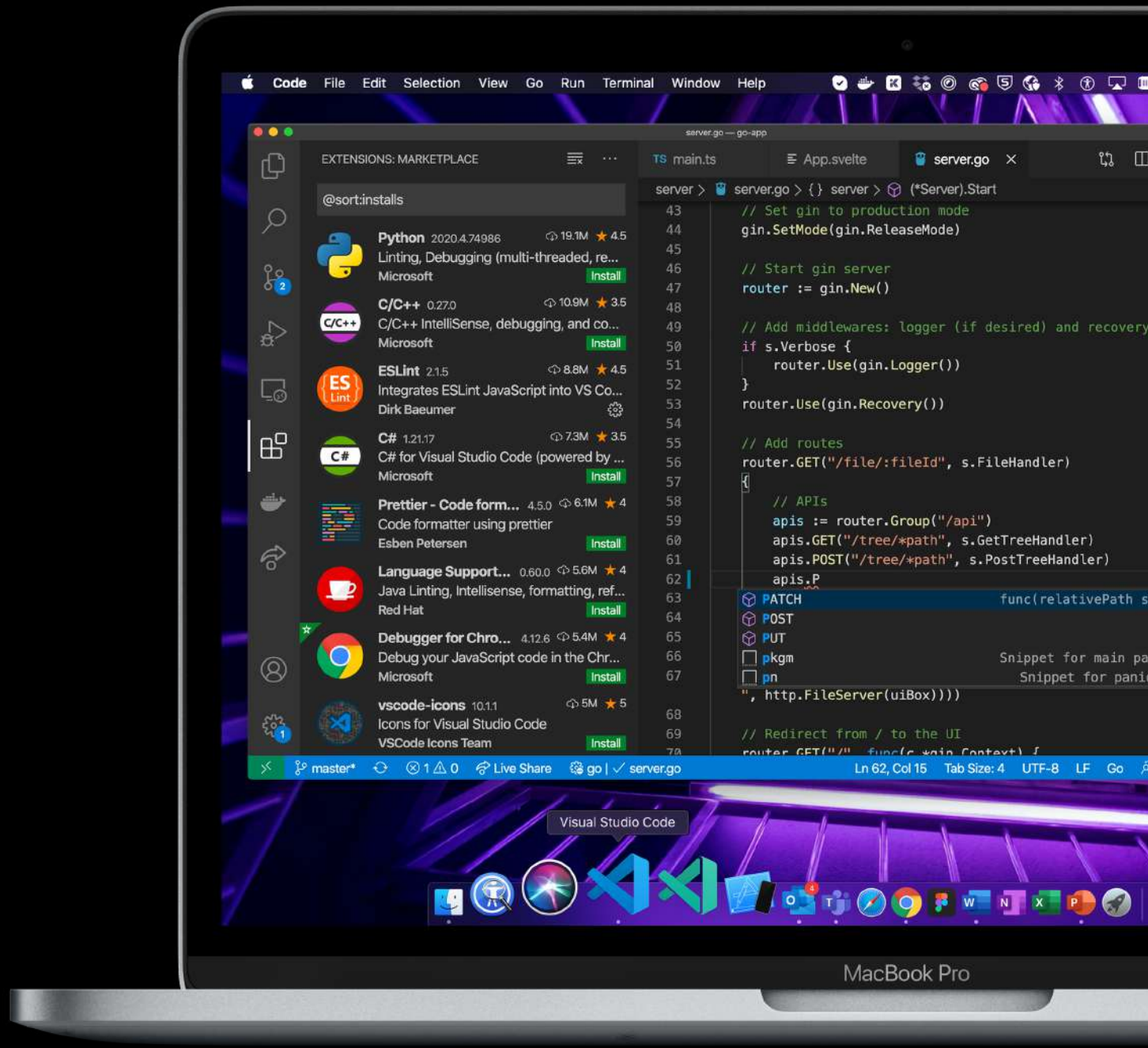
Visual Studio Code

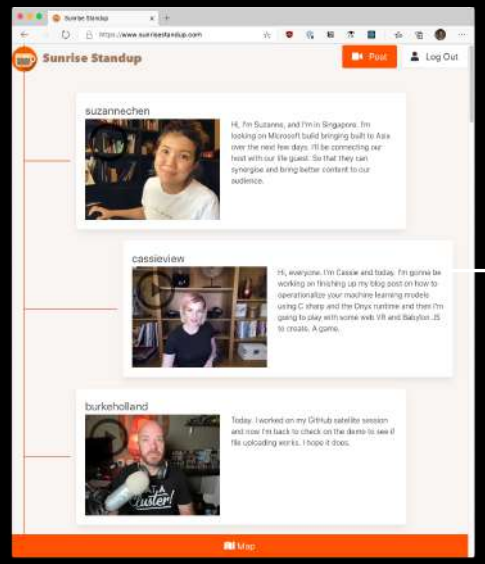
Tailor your editor experience with 21,000+ extensions

Develop locally, remotely, or even in the browser

Preview: Sync and roam your settings and extensions

code.visualstudio.com





Single-page app

Azure

Static
Web Apps

Serverless
Functions

GitHub

Visual Studio Code

Announcing

Azure Static Web Apps

Serverless hosting for dynamic scaling

GitHub native workflow

Unified hosting and management

AI에서 살펴보는 오픈 소스와 개발 환경

참고: 오픈 소스 AI/딥러닝 프레임워크

2010 2013 2014 2015 2016 2017 2018 2019 2020

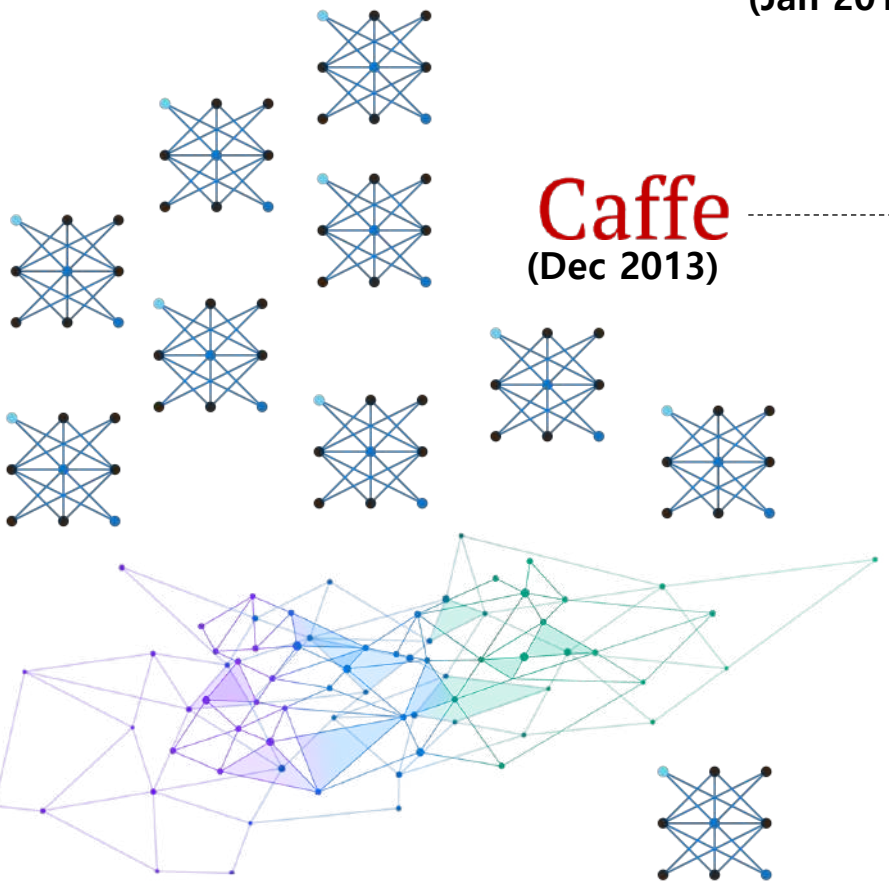
theano (Nov 2010)

torch (Jan 2015) Facebook open sources deep learning modules

PyTorch (Oct 2016) (May 2018) v1.0 (Dec 2018)

Chainer (Jun 2015)

(Dec 2019)



Caffe (Dec 2013)

Caffe2 (Apr 2017) (Mar 2018)

CNTK (Computational Network Toolkit) (Apr 2015)

Microsoft Cognitive Toolkit (Jan 2016) (Apr 2019)

(Sep 2017) ONNX Graduate project in Linux Foundation AI (Nov 2019)

Keras (Mar 2015)

mxnet (May 2016, 0.7.0)

TensorFlow (Nov 2015) (Sep 2019) TensorFlow 2.0

(Aug 2016) PaddlePaddle

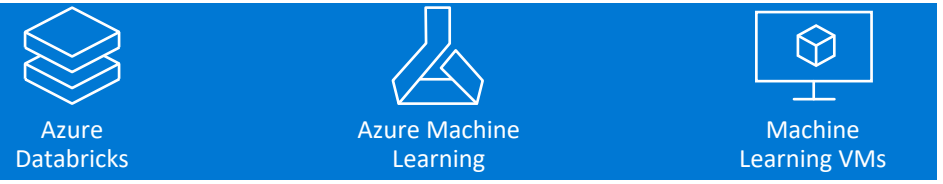
AI 개발자를 위한 다양한 Azure & 개발 도구

정교하게 미리 학습된 도메인별 모델
솔루션 개발을 손쉽게 구현하기 위한 방법

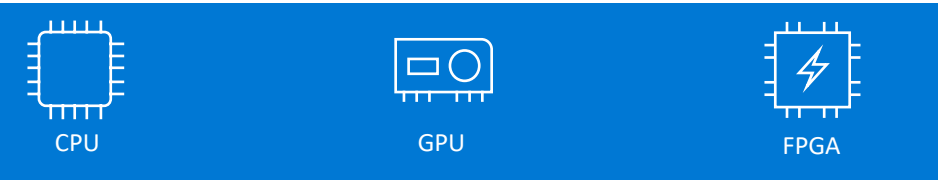
익숙한 IDE / 데이터 과학자 도구 사용
쉽게 모델 개발 및 테스트를 하기 위한 방법

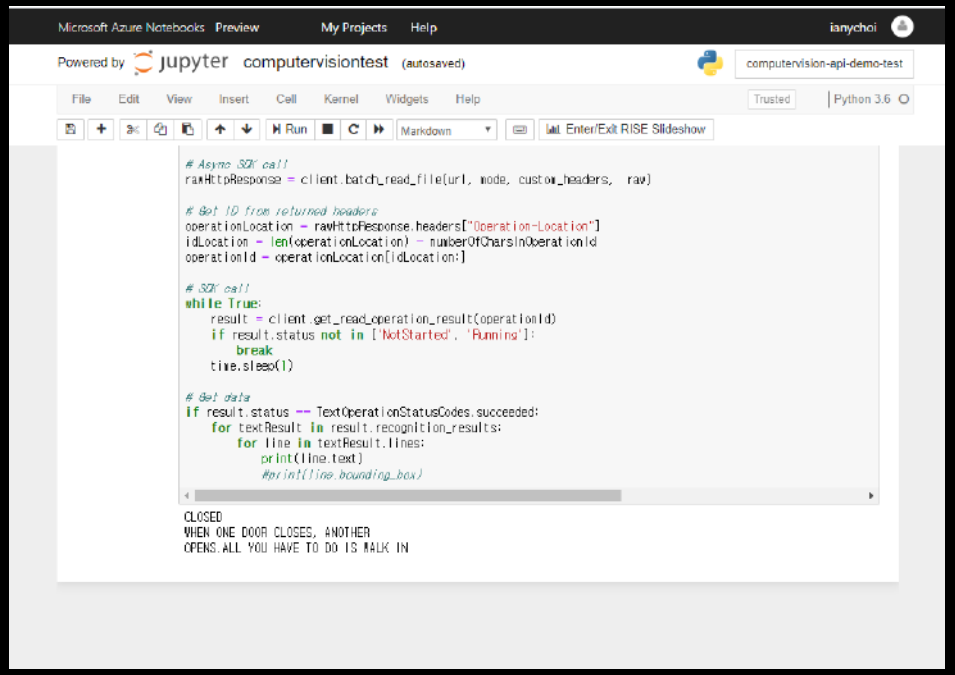
유용한 프레임워크 활용
고급 딥러닝 솔루션을 구축하기 위한 방법

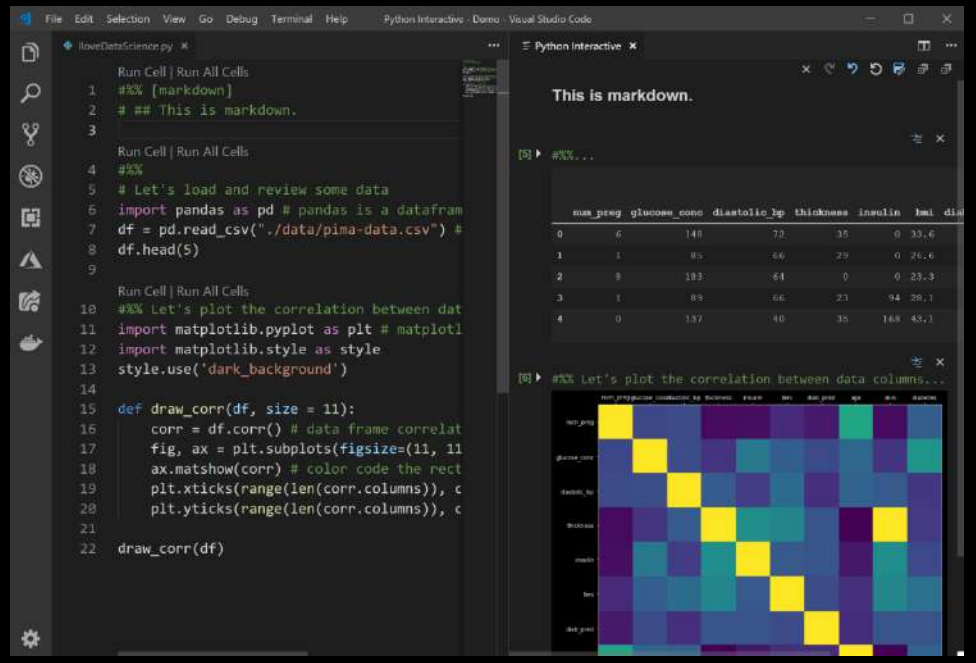
다양한 서비스 활용을 통한 생산성 향상
데이터 사이언스와 개발 팀을 위한 역량 강화

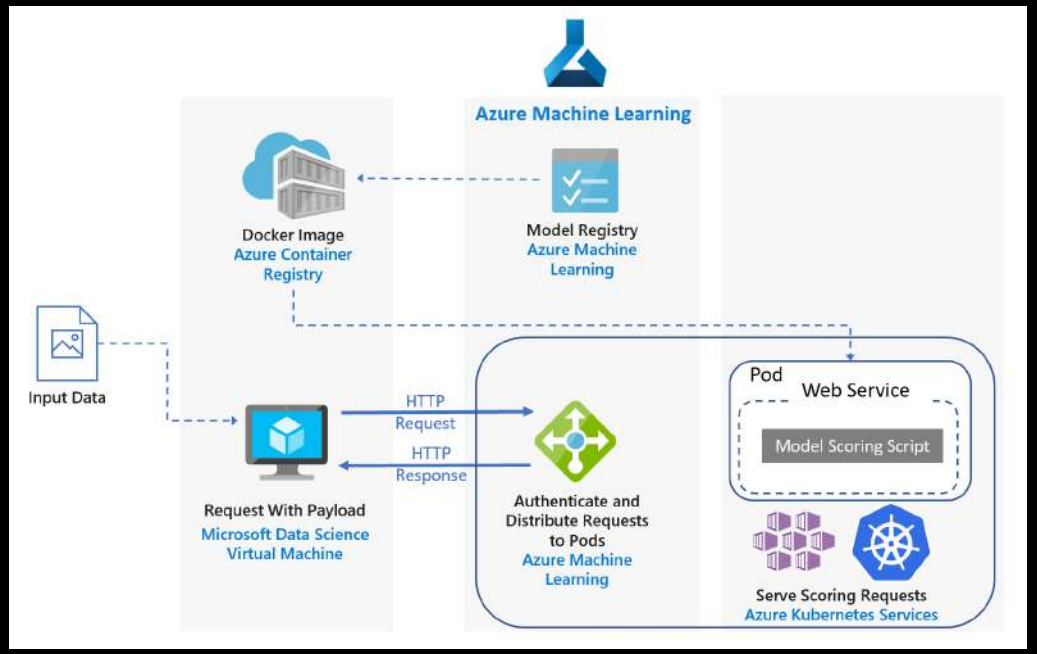


강력한 인프라스트럭처
효율적이고 원활한 딥러닝 환경 제공




Microsoft Azure Notebooks Preview
My Projects
Help
ianychoi
Powered by jupyter computervisiontest (autosaved)
computervision-api-demo-test
File Edit View Insert Cell Kernel Widgets Help
Trusted
Python 3.6
Run
Markdown
Enter/Exit RISE Slideshow
# Async SDK call
rawHttpResponse = client.batch_read_file(url, mode, custom_headers, raw)
# Get ID from returned headers
operationLocation = rawHttpResponse.headers["Operation-Location"]
idLocation = len(operationLocation) - numberOfCharsInOperationId
operationId = operationLocation[idLocation:]
# SDK call
while True:
result = client.get_read_operation_result(operationId)
if result.status not in ['NotStarted', 'Running']:
break
time.sleep(1)
# Get data
if result.status == TextOperationStatusCodes.succeeded:
for textResult in result.recognition_results:
for line in textResult.lines:
print(line.text)
#print(line.bounding_box)
CLOSED
WHEN ONE DOOR CLOSES, ANOTHER
OPENS. ALL YOU HAVE TO DO IS WALK IN


File Edit Selection View Go Debug Terminal Help
Python Interactive - Demo - Visual Studio Code
iloveDataScience.py
Python Interactive
Run Cell | Run All Cells
#%% [markdown]
This is markdown.
Run Cell | Run All Cells
#%%
# Let's load and review some data
import pandas as pd # pandas is a datafram
df = pd.read_csv("./data/pima-data.csv") #
df.head(5)
Run Cell | Run All Cells
#%% Let's plot the correlation between dat
import matplotlib.pyplot as plt # matplotl
import matplotlib.style as style
style.use('dark_background')
def draw_corr(df, size = 11):
corr = df.corr() # data frame correlat
fig, ax = plt.subplots(figsize=(11, 11
ax.matshow(corr) # color code the rect
plt.xticks(range(len(corr.columns)), c
plt.yticks(range(len(corr.columns)), c
draw_corr(df)
This is markdown.
#%%...
num_preg glucose_conc diastolic_bp thickness insulin bmi
0 6 148 72 35 0 33.6
1 1 85 66 29 0 26.6
2 8 183 64 0 0 23.3
3 1 89 66 23 94 28.1
4 0 137 40 35 168 43.1
#%% Let's plot the correlation between data columns...


Azure Machine Learning
Docker Image
Azure Container Registry
Model Registry
Azure Machine Learning
Input Data
HTTP Request
HTTP Response
Request With Payload
Microsoft Data Science Virtual Machine
Authenticate and Distribute Requests to Pods
Azure Machine Learning
Pod
Web Service
Model Scoring Script
Serve Scoring Requests
Azure Kubernetes Services


Microsoft
Azure Marketplace
Data Science Virtual Machine - Windows 2016
Microsoft
개요
계획
검토
AI, 데이터 과학 및 분석용 개발 및 모델링 도구
지금 사용
나중을 위해...
Data Science Virtual Machine
LANGUAGES
DEVELOPMENT TOOLS
DEEP LEARNING TOOLS
DATA PLATFORM & INGESTION TOOLS
ML & AI TOOLS
DATA EXPLORATION & VISUALIZATION

다시 WSL2로 돌아와서.. WSL2 + GPU?!

WSL will support GPU Compute workflows

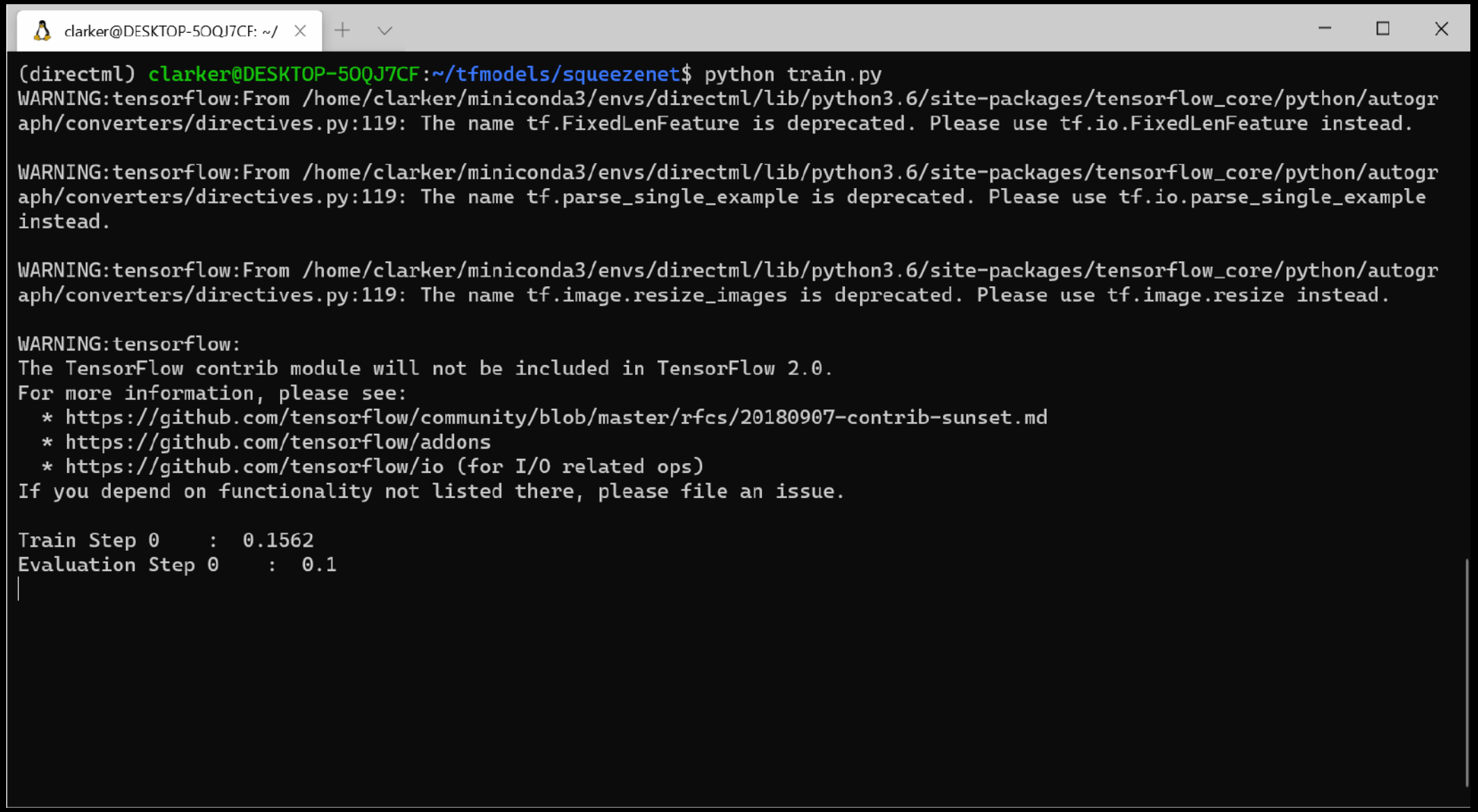
Adding CUDA and/or GPU Compute support to WSL has been our #1 most requested feature since our first release! Over the last 3+ years, the WSL, Virtualization, DirectX, Windows Driver teams, and our silicon partners have been working hard on a complex engineering feat to deliver this capability.

This is why we're thrilled to announce that we will start previewing GPU compute support for WSL in Windows 10 Insider builds within the next few months!

Initially, the GPU compute capability will support two scenarios:

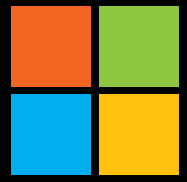
- NVIDIA CUDA
  - Supports existing Linux tools & workflows used by professionals
- DirectML
  - Initially targeting beginners and students, leveraging DirectX 12 capable GPUs from several vendors
  - The team will be releasing a preview package of TensorFlow with a DirectML backend enabling hardware agnostic acceleration of AI & ML workloads across the breadth of Windows hardware – DirectML will also support native Windows too, including TensorFlow on Windows!

TensorFlow on WSL2 with GPU!



(NVIDIA에서도 발표)


Every developer is welcome!



Microsoft Azure

Invent with purpose