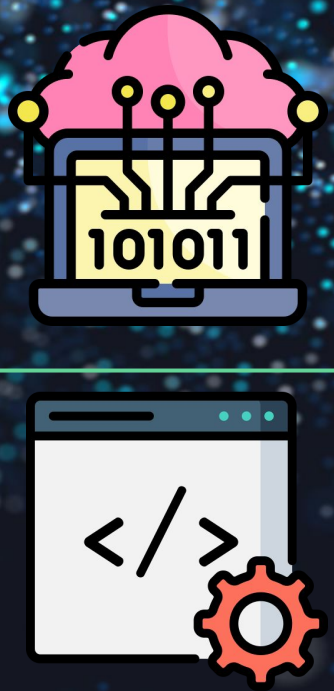
Machine Learning: Lenguajes y Librerías (2024)



Lenguajes de Programación

Python!

Javascript

Lenguajes de Programación

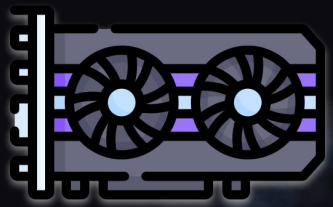
Lenguaje	Investigación	Análisis de Datos	Desarrollo de Sistemas	Librerías de Base	Alto Desempeño	Popularidad
Python	✅	✅	✅	✅		✅
R	✅	✅				✅
Julia	✅	✅			✅	
C++	✅			✅	✅	
Javascript			✅			✅
Java			✅		✅	

Plataformas

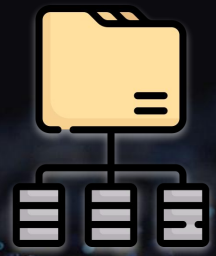
VsCode / otro IDE

Python + pip

Entorno Local



Sesiones de Cómputo Acelerado



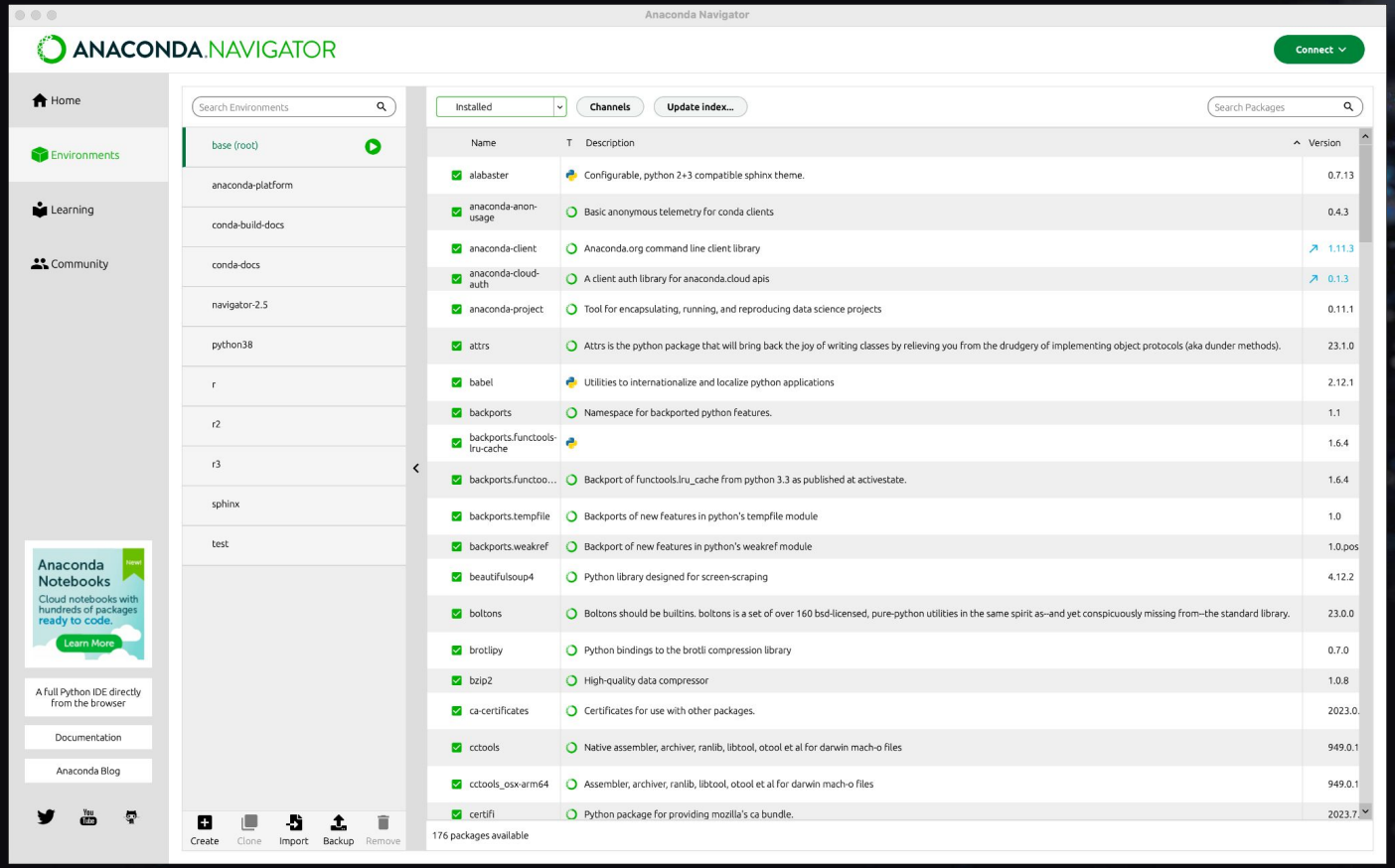
Datos en la nube

Python con paquetes preinstalados

Interfaz web basada en Jupyter

Google Colab / Kaggle / Amazon SageMaker

Anaconda Python (local)



IPython (Interactive Python)

- Terminal con autocompletar y otras facilidades

```
❯ ipython
Python 3.10.12 (main, Jul 29 2024, 16:56:48) [GCC 11.4.0]
Type 'copyright', 'credits' or 'license' for more information
IPython 8.24.0 -- An enhanced Interactive Python. Type '?' for help.

In [1]: import numpy as np
```

Jupyter Notebook

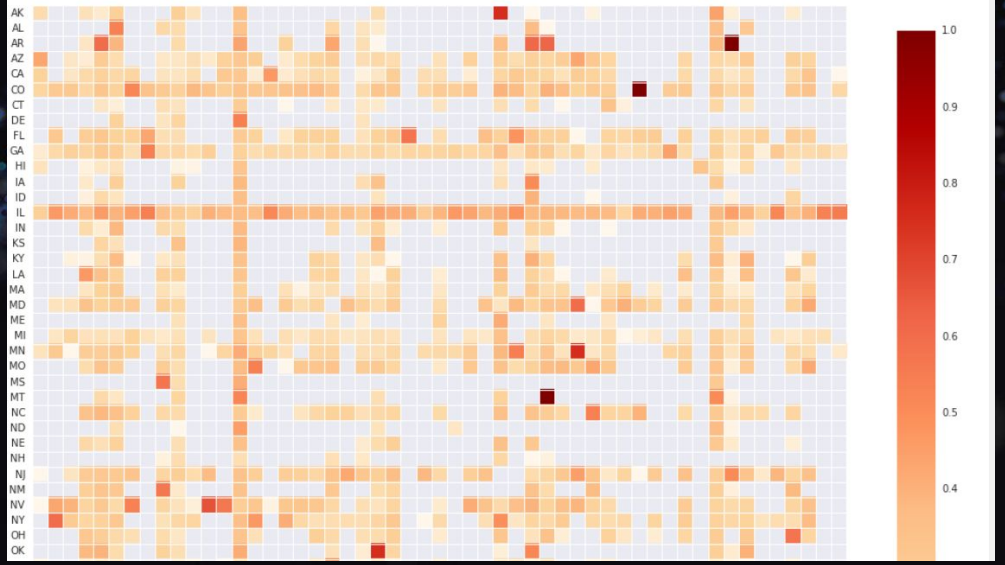
- Entorno de desarrollo integrado
- Texto
- Código
- Resultados

We can also see some other moderately hot spots, such as (AK → NJ) and (OK → MN), which seem to have a higher percentage of delays than other state pairs.

One "crosshair" jumps out in the visualization: the row and column representing Illinois are nearly both filled with non-gray cells. On closer inspection, we see Illinois sends flights to and receives flights from every other state except one: TT, the state code abbreviation for U.S. Pacific Trust Territories and Possessions. And though it is difficult to make accurate relative value judgments from this visualization, it appears the run of cells in the row and column for Illinois are darker than most other row or column runs (e.g., GA).

```
fig, ax = plt.subplots(figsize=(18,18))
asymmatplot(mat, names=mat.columns, ax=ax, cmap='OrRd', cmap_range=(0., 1.0))
```

```
<matplotlib.axes._subplots.AxesSubplot at 0x7f679b051950>
```



Google Colab (Jupyter Notebook Custom)

YOLO Traffic.ipynb ☆

Archivo Editar Ver Insertar Entorno de ejecución Herramientas Ayuda Se editó por última vez: 11 de julio

+ Código + Texto

```
1 Comienza a programar o generar con IA.
```

```
1 !pip install ultralytics
2
3 import numpy as np
4 import cv2
5 from pathlib import Path
6
7 import ultralytics
8 ultralytics.checks()
9 from ultralytics import YOLO
10
```

```
Ultralytics YOLOv8.2.52 🚀 Python-3.10.12 torch-2.3.0+cu121 CPU (Intel Xeon 2.20GHz)
Setup complete ✅ (2 CPUs, 12.7 GB RAM, 31.0/107.7 GB disk)
```

Ecosistema Python

Herramientas

IPython

jupyter

Python

Librerías Bajo Nivel

TensorFlow

pandas

NumPy

Matplotlib

Librerías Alto Nivel

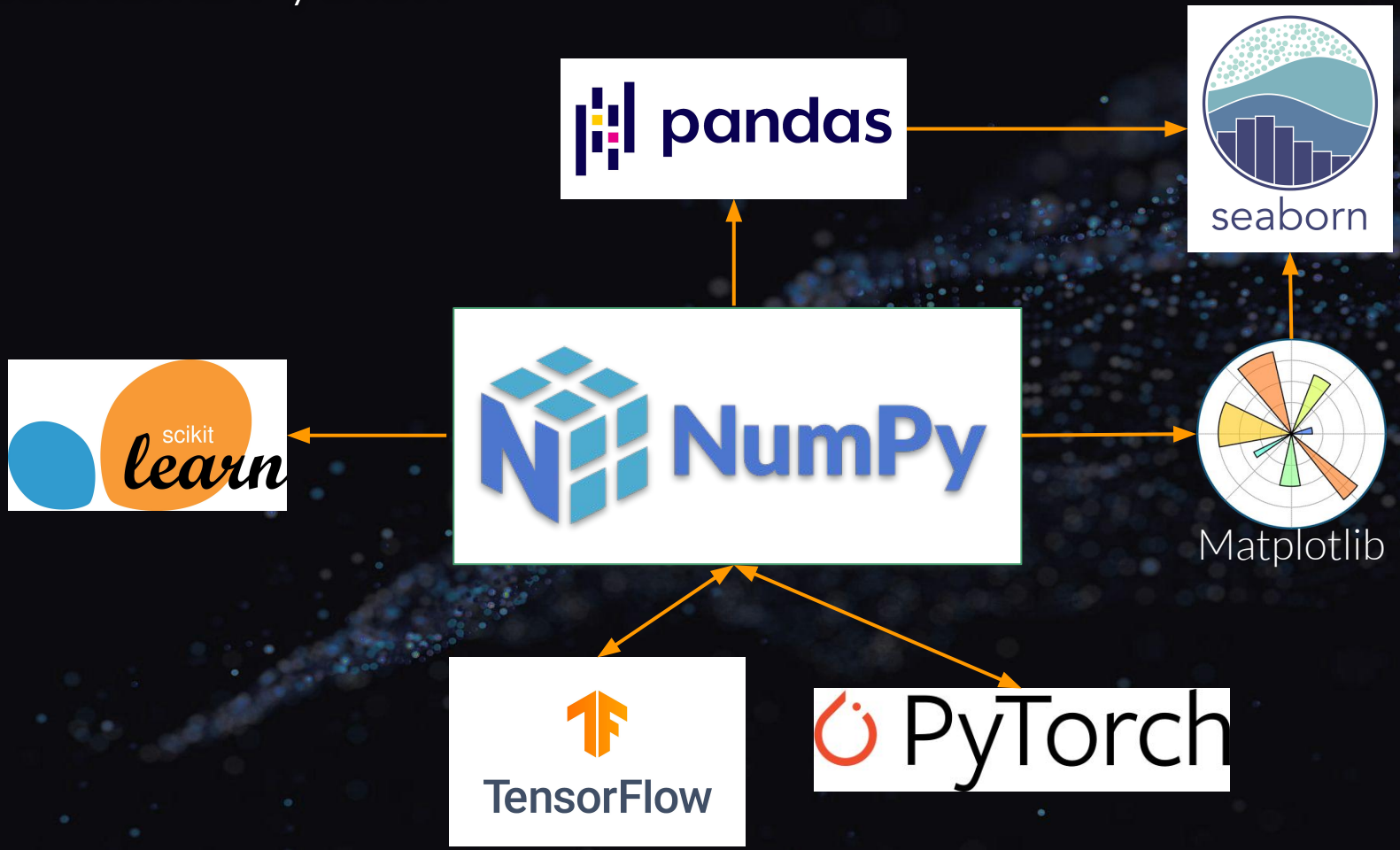
Keras

PyTorch

scikit learn

seaborn

Ecosistema Python



Ecosistema Python

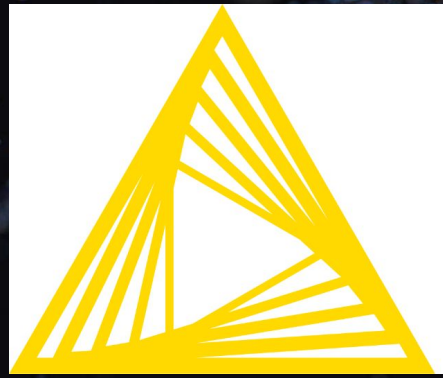
Nombre	Tipo	Nivel	Objetivo
IPython	**Intérprete**	**-**	**Probar programas de forma interactiva**
Jupyter	IDE	-	Desarrollo simple con “Notebooks”
Numpy	**Librería**	**Bajo**	**Álgebra Vectorial Acelerada**
Pandas	Librería	Alto	Datos Tabulares
Matplotlib	**Librería**	**Bajo**	**Visualización (primitivas)**
Seaborn	Librería	Alto	Visualización (alto nivel)
Scikit-Learn	**Librería**	**Alto**	**Machine Learning**
PyTorch	Librería	Bajo/Medio	Numpy para DL + Modelos de DL
TensorFlow	**Librería**	**Bajo/Medio**	**Numpy para DL**
Keras	Librería	Alto	Modelos de DL para TensorFlow

Estrellas de Github de Frameworks (2024)

- ML tradicional
  - Scikit-learn: ⭐59k
- Deep Learning
  - Pytorch: ⭐ 86k
  - Keras: ⭐ 61k
  - Tensorflow:⭐ 185k
  - Transformers (Hugging Face): ⭐ 130k
- Para comparar
  - Python: ⭐ 184k
  - React: ⭐ 227k

Plataformas sin código

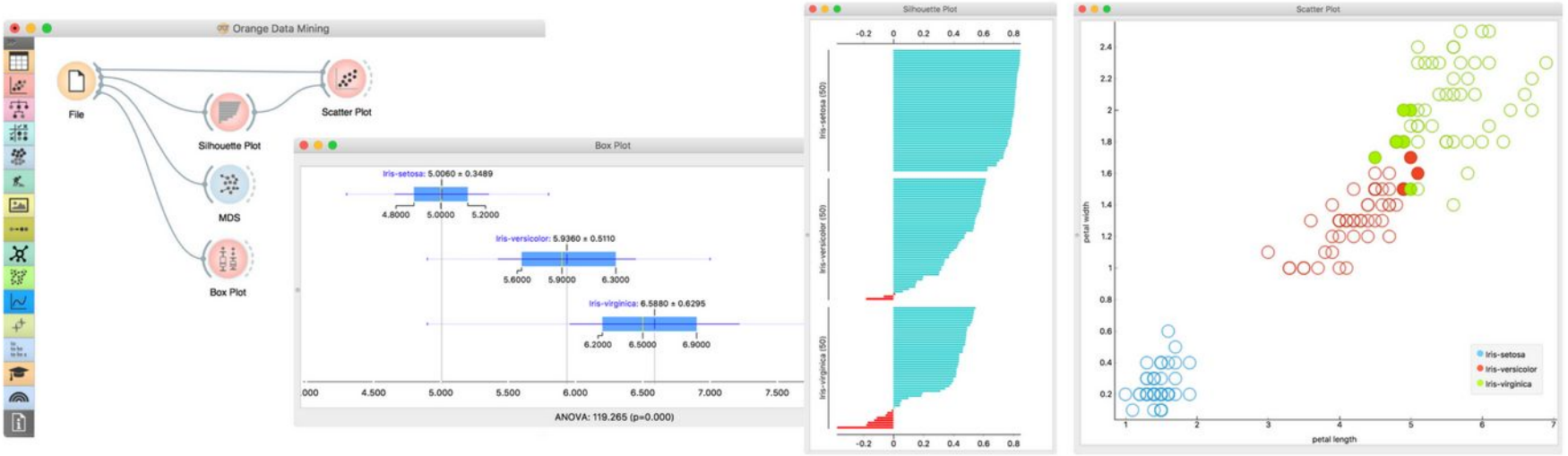
ALTAIR



Open for Innovation

KNIME

Plataformas sin código



Plataformas sin código

Open for Innovation
KNIME