



First meeting with the Artificial Intelligence Sustainability Lab at HNEE (KIN'L)

Jorge Ruiz



**Eberswalde University
for Sustainable
Development**

What's the KIN'L?

Artificial Intelligence Sustainability Lab at Eberswalde University for Sustainable Development (KI-Nachhaltigkeitslabor, KIN'L@HNEE). The Federal Ministry of Education and Research (BMBF) is funding the establishment of an AI sustainability laboratory at HNEE as part of the KI-Nachwuchs@FH funding guideline. The endeavour is centered on the acquisition of an AI computing system for use in teaching, research and transfer.

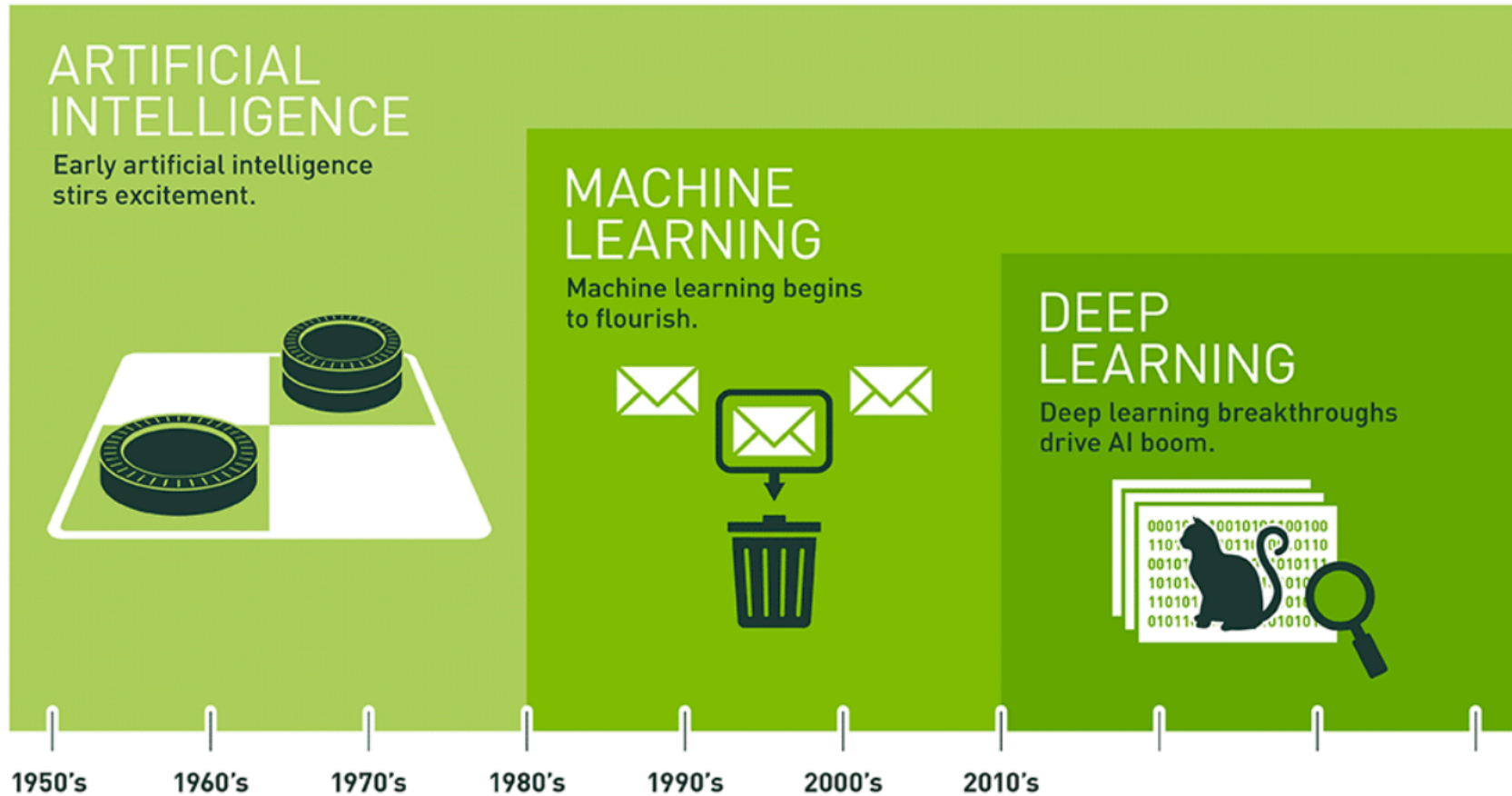
- April 1st 2023 to April 30th 2025
- Funding body: BMBF
- Contact person: Peter Neumeister

GEFÖRDERT VOM



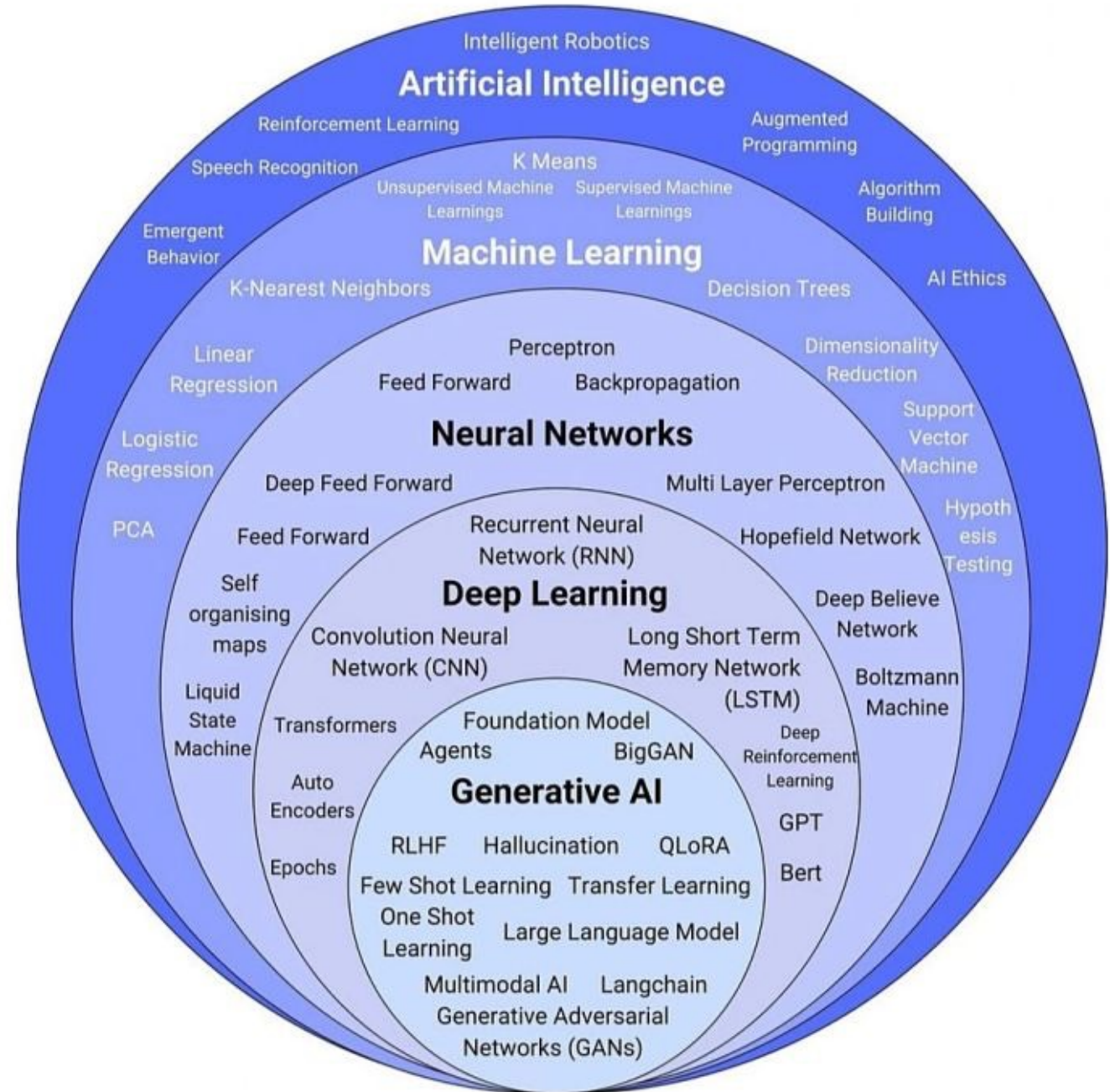
Bundesministerium
für Bildung
und Forschung

Artificial intelligence (AI), machine learning (ML), deep learning (DL)

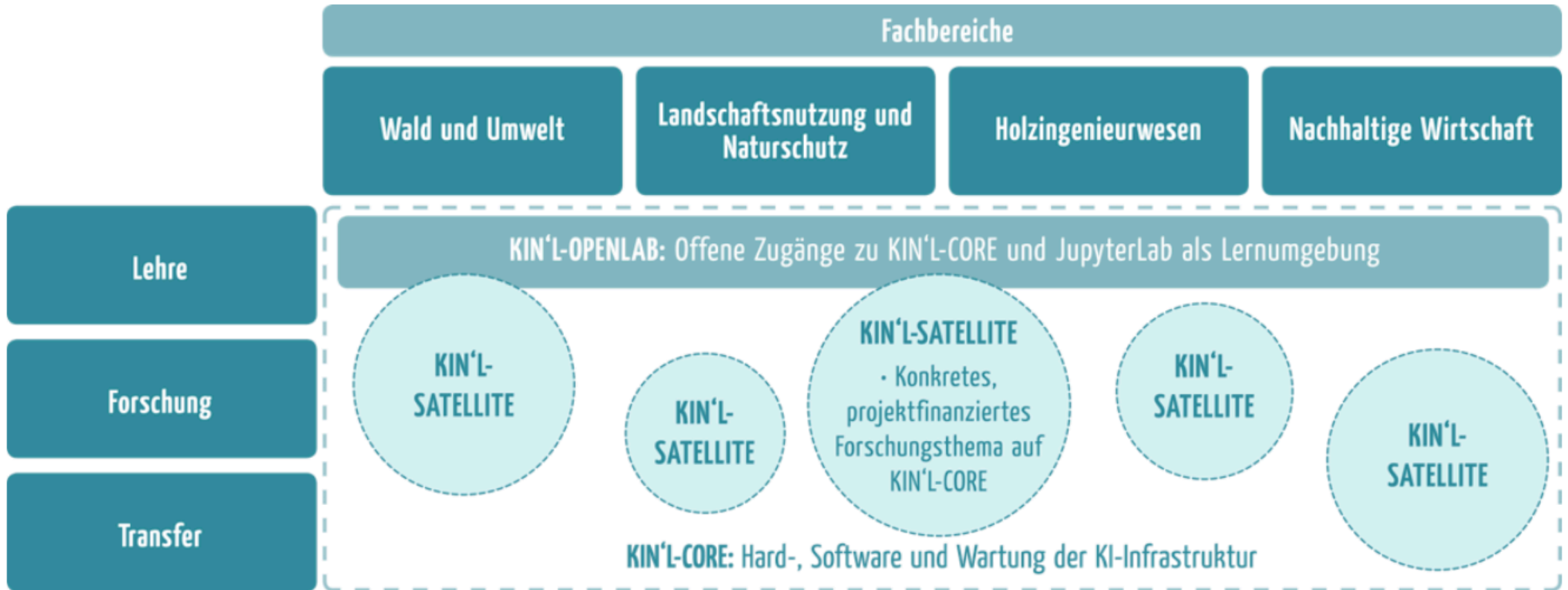


Since an early flush of optimism in the 1950s, smaller subsets of artificial intelligence – first machine learning, then deep learning, a subset of machine learning – have created ever larger disruptions.

AI, ML, DL



KIN'L into the HNEE

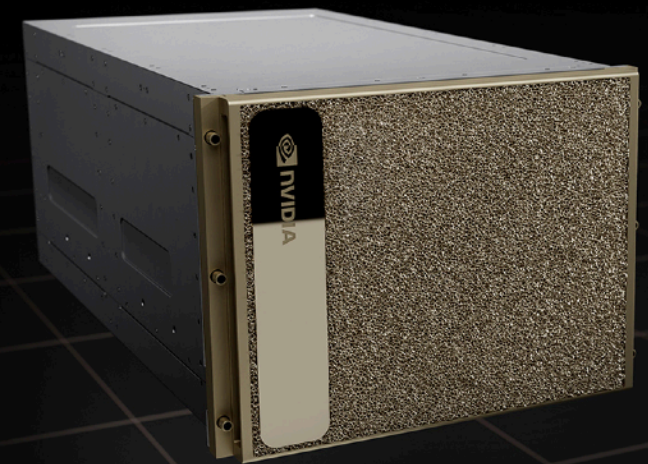


KIN'L-CORE Hardware: NVIDIA GPUs

- 8x NVIDIA H100 Tensor Core GPUs
- 640GB total GPU memory
- 2TB RAM system memory
- Networking up to 400Gb/s InfiniBand/Ethernet
- Storage with 500TB NVMe SSDs

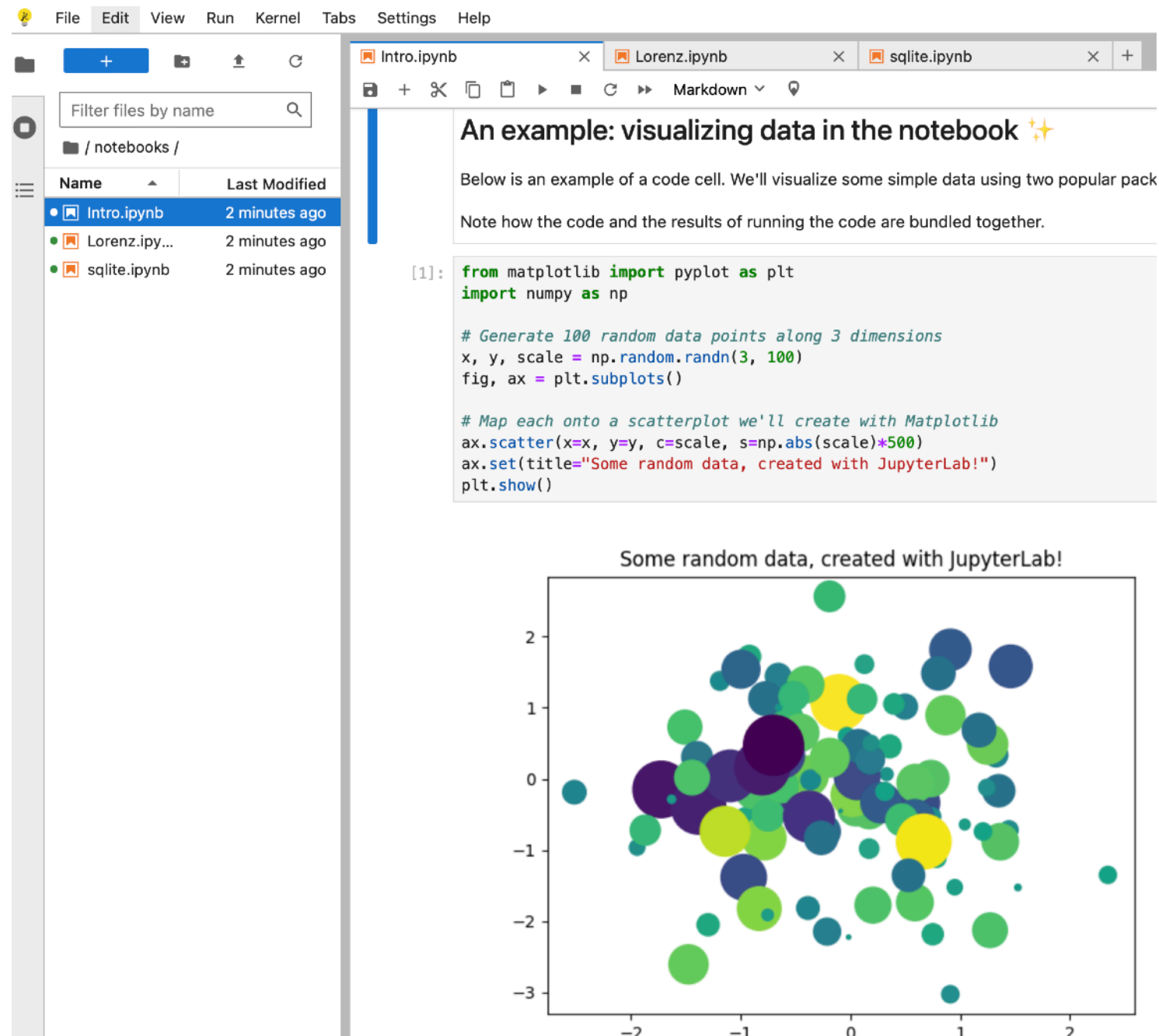
NVIDIA DGX H100

The gold standard for AI infrastructure.



KIN'L-OPENLAB Software: JupyterLab

- Web-based interactive development environment
- Flexible interface to configure and arrange workflows
- Modular design to enrich functionality



The screenshot displays the JupyterLab web interface. On the left, a file browser shows a directory named 'notebooks' containing three files: 'Intro.ipynb', 'Lorenz.ipynb', and 'sqlite.ipynb', all modified '2 minutes ago'. The main area shows a code cell in 'Intro.ipynb' with the following Python code:

```
[1]: from matplotlib import pyplot as plt
import numpy as np

# Generate 100 random data points along 3 dimensions
x, y, scale = np.random.randn(3, 100)
fig, ax = plt.subplots()

# Map each onto a scatterplot we'll create with Matplotlib
ax.scatter(x=x, y=y, c=scale, s=np.abs(scale)*500)
ax.set(title="Some random data, created with JupyterLab!")
plt.show()
```

Below the code cell, a scatter plot titled "Some random data, created with JupyterLab!" is displayed. The plot shows 100 data points in a 2D space, where the x and y axes range from approximately -2.5 to 2.5. The points are colored and sized based on a third dimension, 'scale', resulting in a diverse distribution of colors (including purple, blue, green, and yellow) and bubble sizes.

Python



Python (programming language)

[Article](#) [Talk](#)

From Wikipedia, the free encyclopedia

Python is a [high-level, general-purpose programming language](#). Its design philosophy emphasizes [code readability](#) with the use of [significant indentation](#).^[33]

Python is [dynamically typed](#) and [garbage-collected](#). It supports multiple [programming paradigms](#), including [structured](#) (particularly [procedural](#)), [object-oriented](#) and [functional programming](#). It is often described as a "batteries included" language due to its comprehensive [standard library](#).^{[34][35]}

[Guido van Rossum](#) began working on Python in the late 1980s as a successor to the [ABC programming language](#) and first released it in 1991 as Python 0.9.0.^[36] Python 2.0 was released in 2000. Python 3.0, released in 2008, was a major revision not completely [backward-compatible](#) with earlier versions. Python 2.7.18, released in 2020, was the last release of Python 2.^[37]

Python consistently ranks as one of the most popular programming languages, and has gained widespread use in the [machine learning](#) community.^{[38][39][40][41]}

Deep learning libraries

● TensorFlow
Software

● PyTorch
Computer application

+ Add comparison

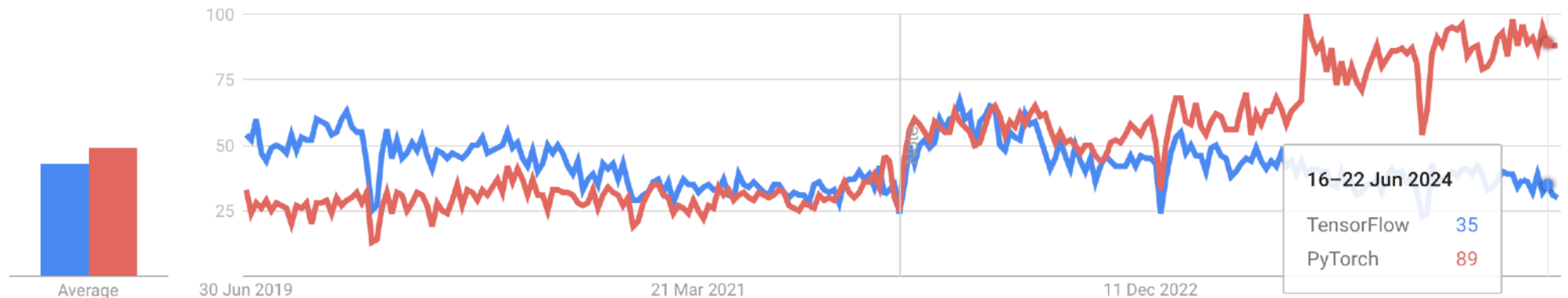
Germany ▼

Past 5 years ▼

All categories ▼

Web Search ▼

Interest over time ⓘ



Hands-on, practical examples

- A JupyterLab example of handwritten digits recognition from the MNIST database using PyTorch
- Local Large Language Models like Llama3 contrasted with ChatGPT

Let's talk!

- We want you to be part of the **KIN'L-Satellites**
- AI use cases in your:
 - Teaching
 - Research
 - Transfer
- Potential to apply for grants and funding
- Other ideas

Any further questions? Please get in touch with us!

Email

Jorge.Ruiz@hnee.de

Webpage

<https://www.hnee.de/kinl>

(Work in progress)