practicum
building ai knowledge

Getting Started with Deep Learning

Deep Learning Foundations
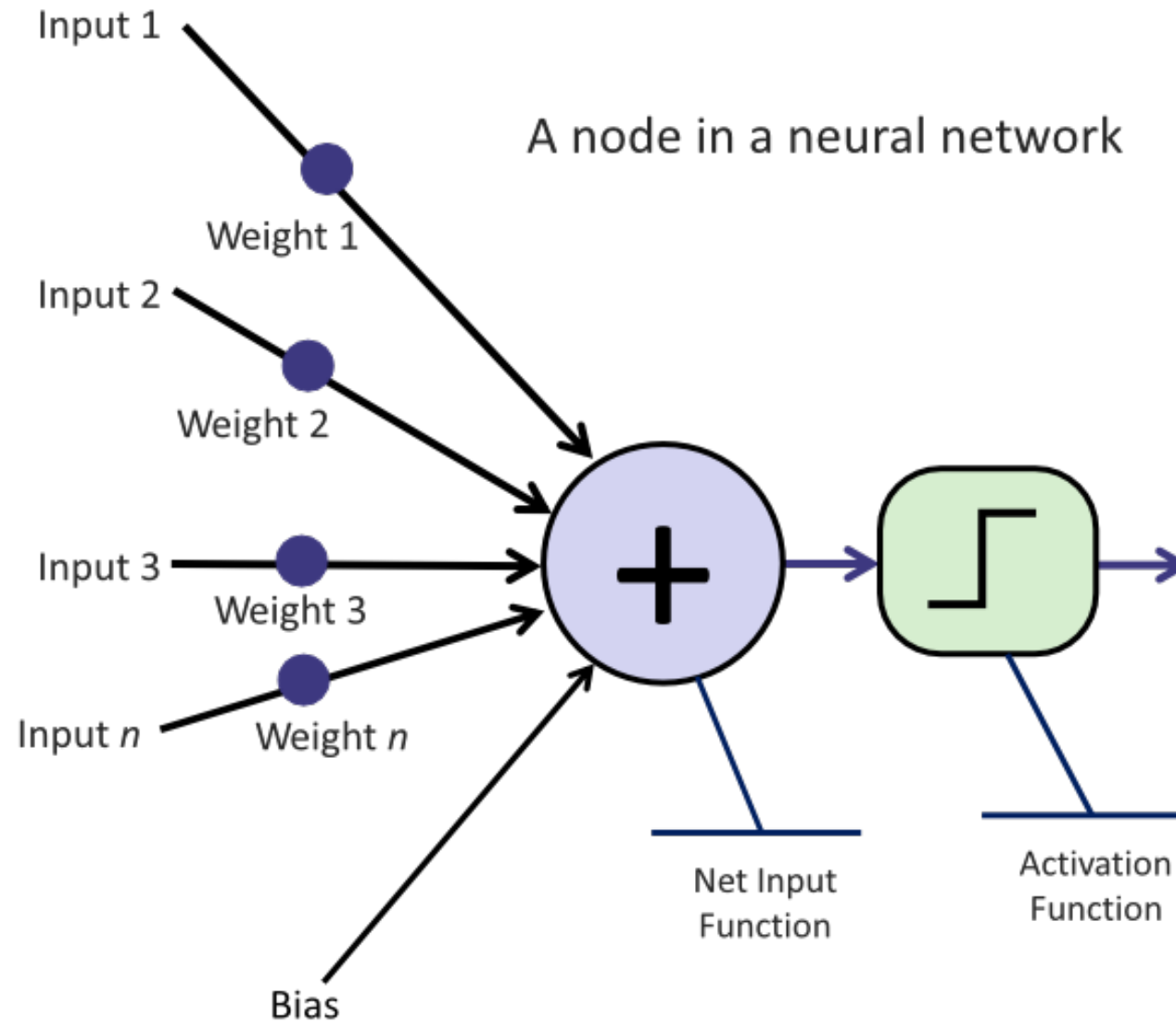
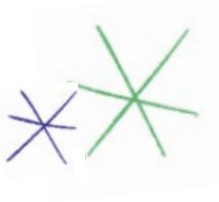Intermediate Series!

How to Tune Your Models

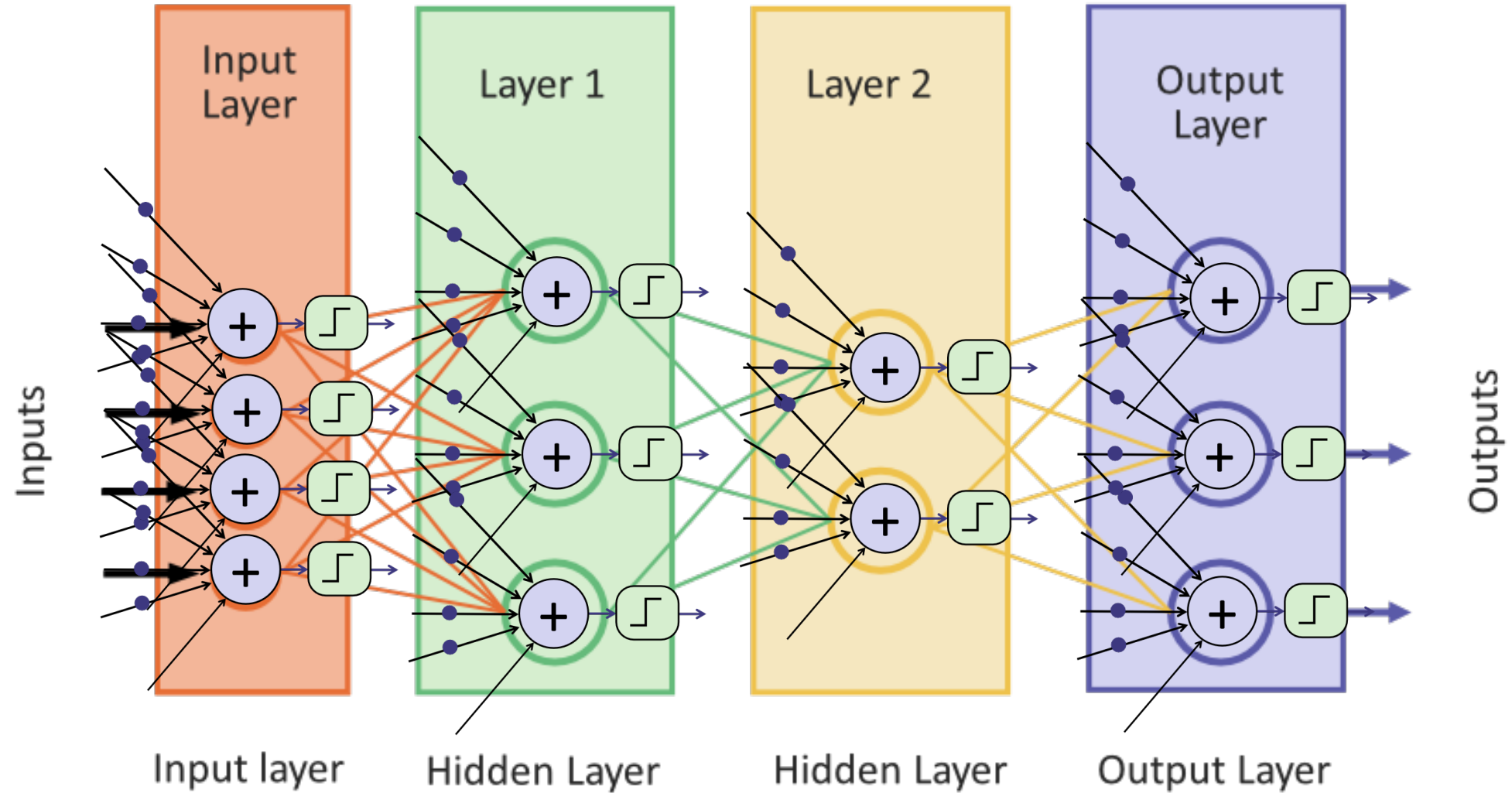Deep Learning, Opening the Machine

Getting Started with Deep Learning

Introducing, The Node

Input 1

Weight 1

Input 2

Weight 2

Input 3

Weight 3

Input n

Weight n

Bias

A node in a neural network

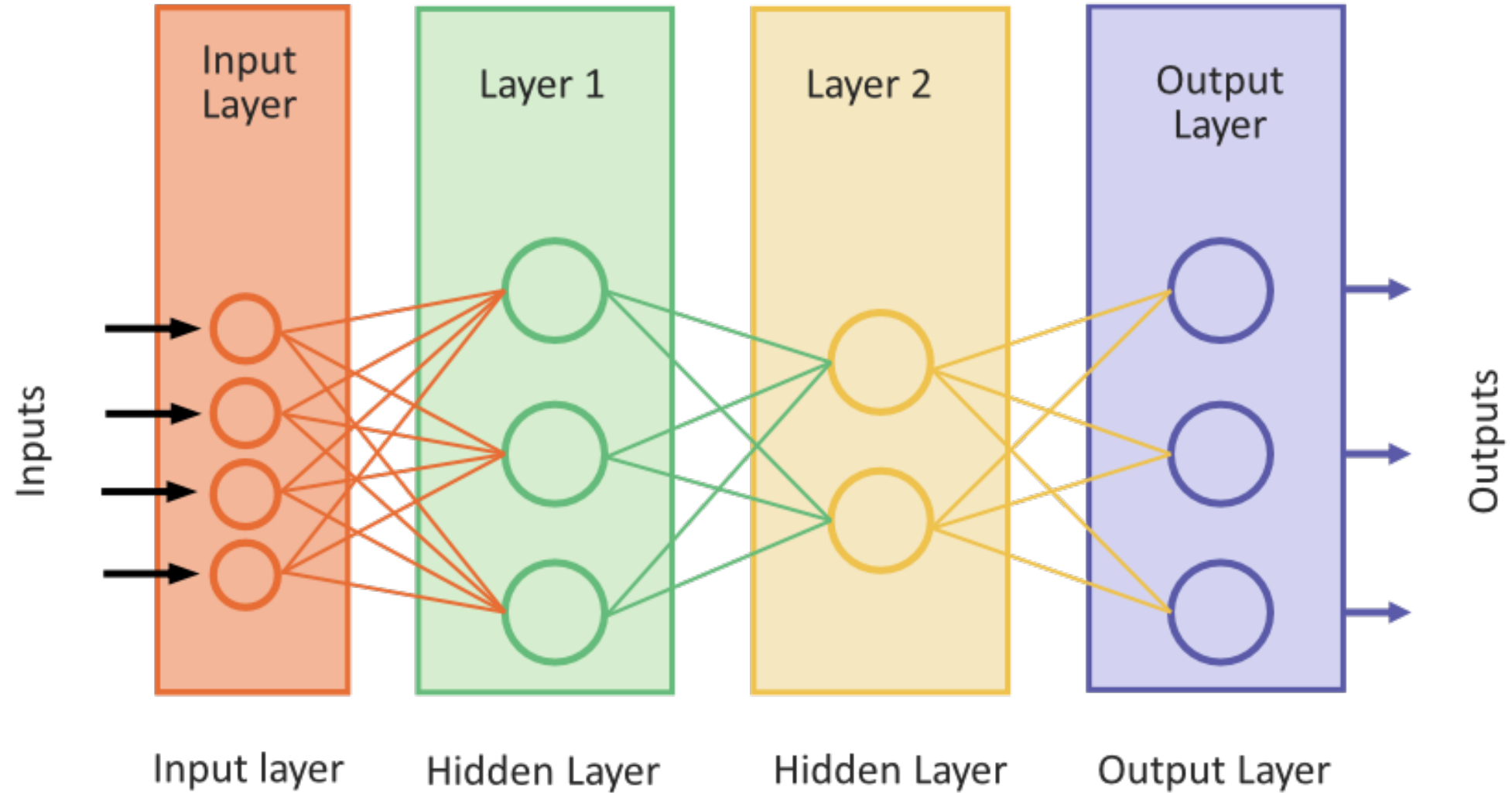Net Input Function

Activation Function

Many Nodes Create a Network

Many Nodes Create a Network
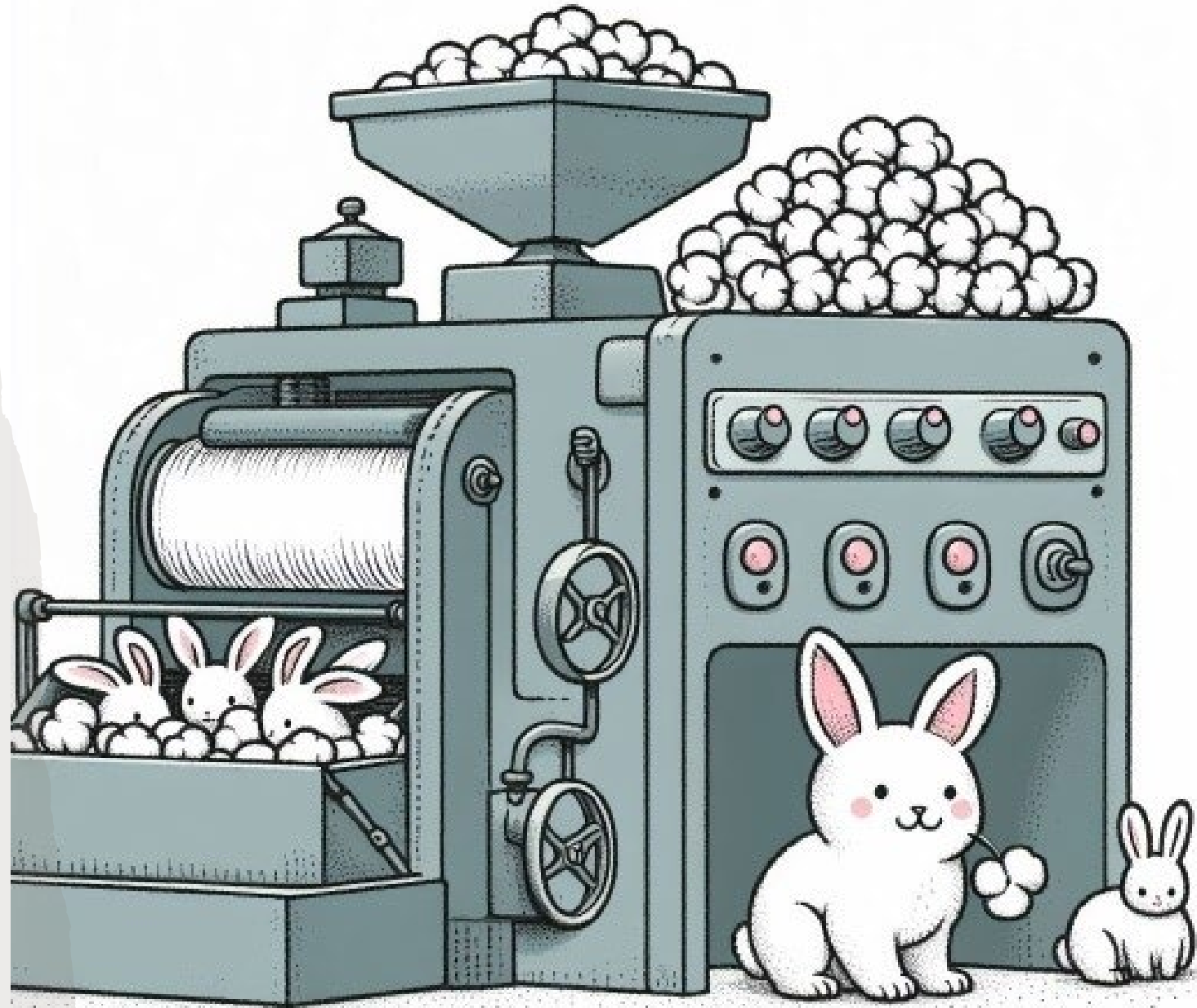
Gradual Improvement Over Time

Image generated using AI tools

Imagine You're Making a Cake...

Input(s) ⇒ ⇒ Output
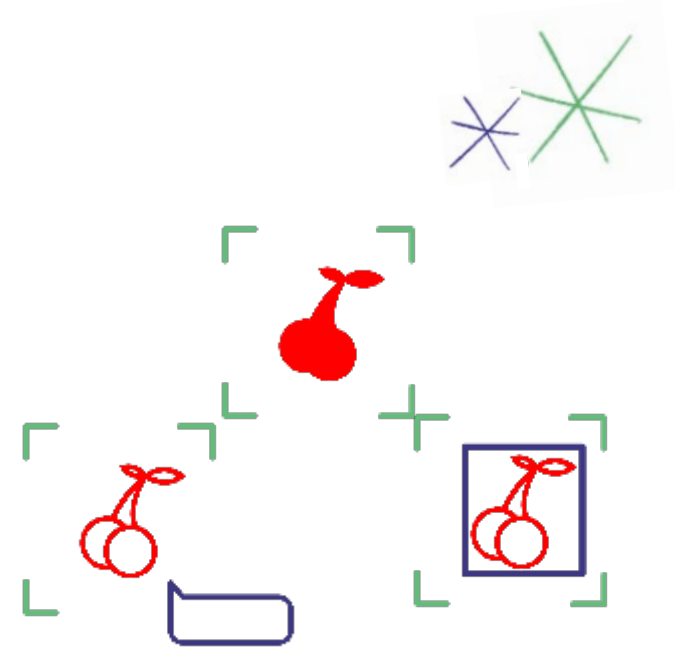
Hidden Layers

Example Neural Network Applications

Natural Language Processing

Generative Methods

Computer Vision
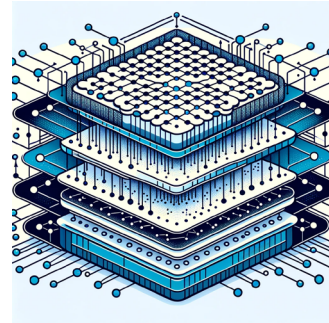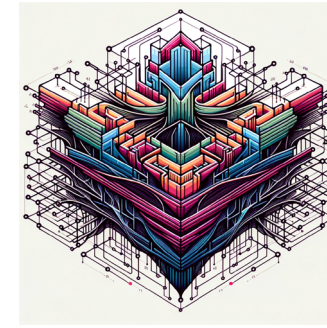
Time Series Analysis

Example Network Architectures

Stable Diffusion

CNN

GAN
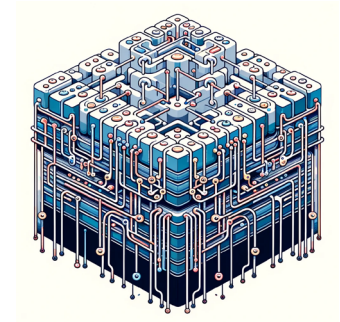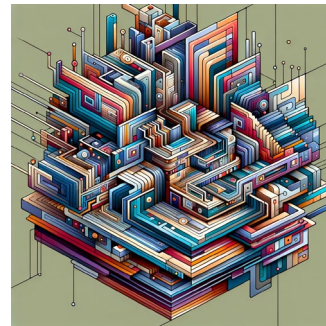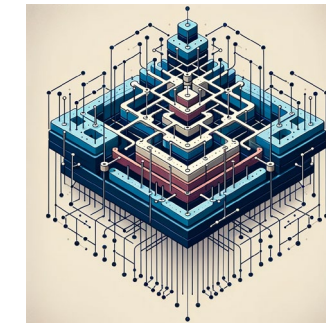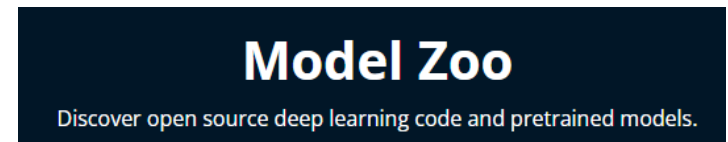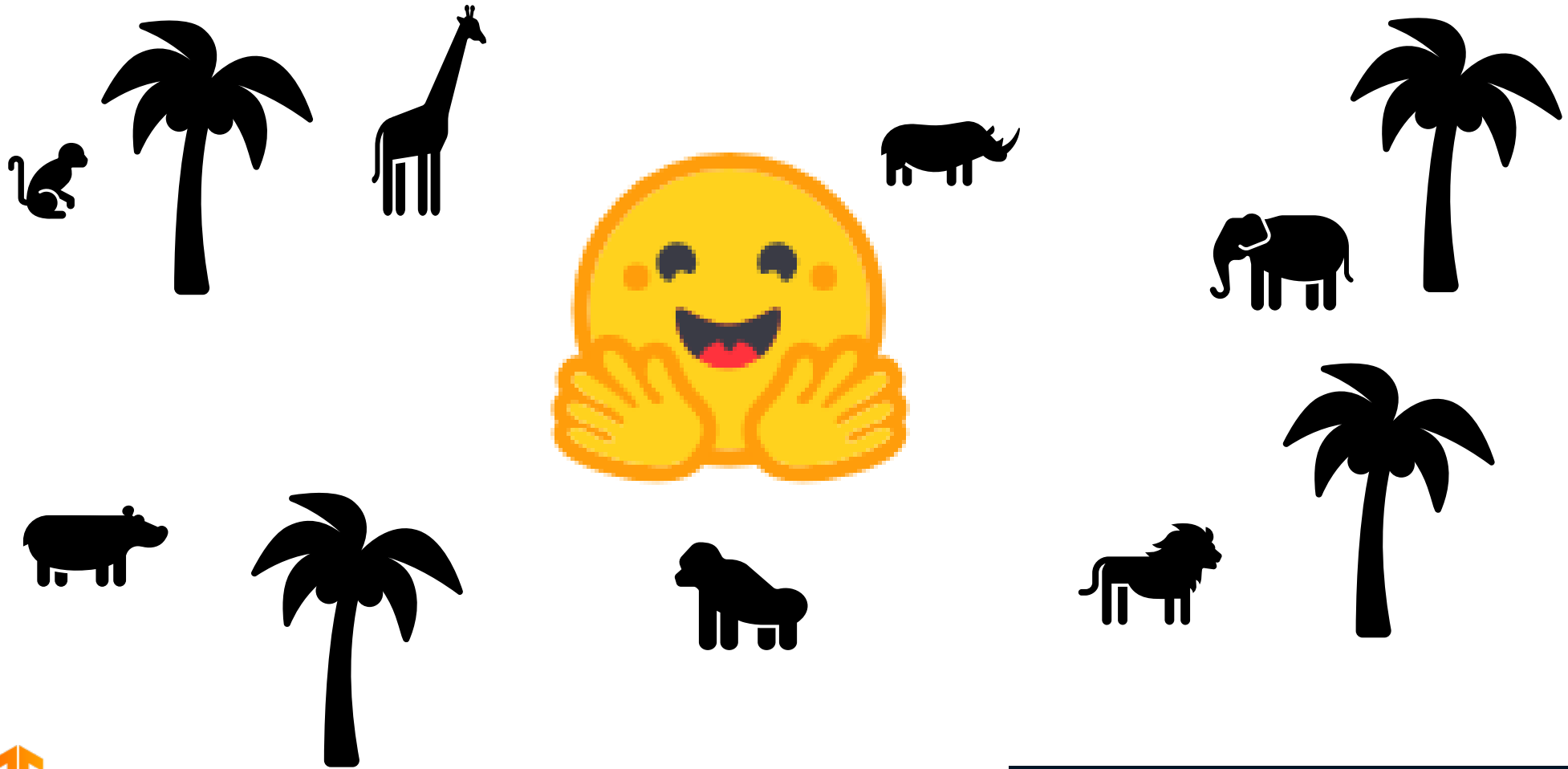

LSTM
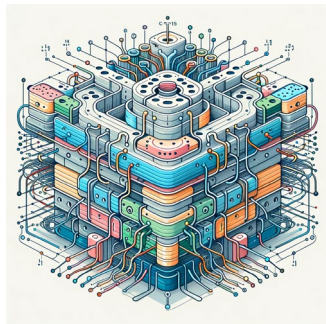
cGAN

Transformer

RNN

All images on this slide were generated using AI tools

A Word on Model Zoos

TensorFlow

NVIDIA. NGC | CATALOG

PyTorch

Model Zoo
Discover open source deep learning code and pretrained models.

Which Framework to Use?

Framework	Initial Release	Focus
PyTorch	September 2016	General deep learning library
PyTorch Lightning	May 2019	Interface for PyTorch that makes it easier to read and reproduce.
TensorFlow	November 2015	General deep learning library
Keras	March 2015	Easy-to-use interface to TensorFlow, but the latest version now also provides an interface to PyTorch and Jax.
(Jax)	May 2022	Speeding up some parts of model training and providing easy scaling across multiple GPUs
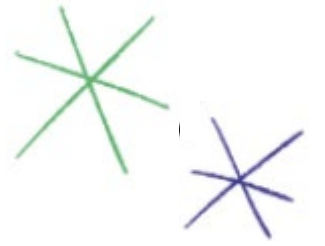
A Vision Quest

01_deep_learning_tour.ipynb

This notebook will walk you through instantiating a pre-trained vision model and testing it against new images!