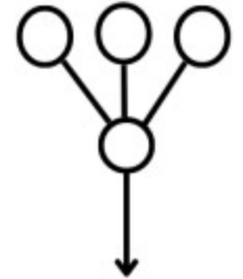


Introduction to Machine Learning (ML)



QUEEN MARY MACHINE
LEARNING SOCIETY

Software / Python

The screenshot displays the Anaconda Navigator desktop application. The interface is divided into a left sidebar and a main content area. The sidebar contains navigation links for Home, Environments, Learning, and Community. The main content area shows a grid of software tiles, each representing a different tool available within the Anaconda ecosystem. These tiles include PyCharm Professional, Anaconda Toolbox, Anaconda Cloud Notebooks, Jupyter Notebook, Qt Console, Spyder, VS Code, Anaconda on AWS Graviton, Oracle Cloud Infrastructure, Glueviz, JupyterLab, and Orange 3. Each tile provides a brief description of the tool's capabilities and a button to either 'Install' or 'Launch' the application. The top of the window features the 'ANACONDA.NAVIGATOR' title bar and a 'Connect' button. The bottom right corner of the window displays the large Anaconda logo.

ANACONDA.NAVIGATOR Connect ▾

Home Environments Learning Community

All applications on base (root) Channels

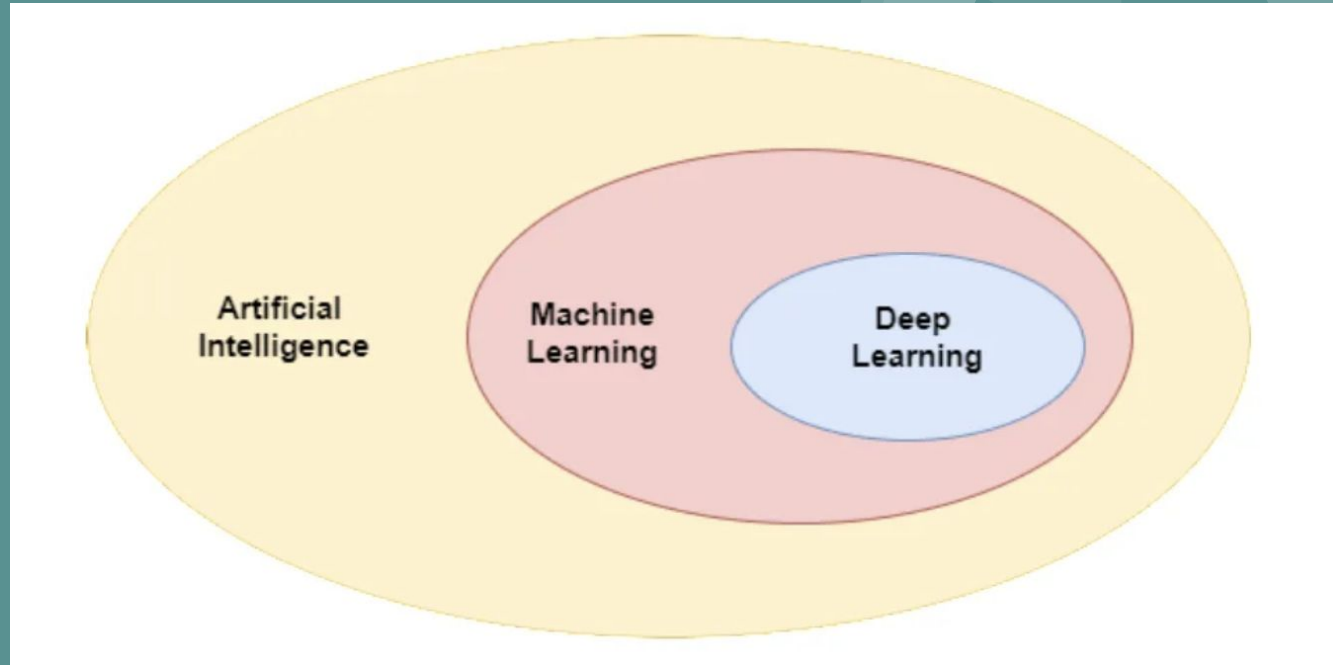
Software	Version	Action
PyCharm Professional	A full-fledged IDE by JetBrains for both Scientific and Web Python development. Supports HTML, JS, and SQL...	Install
Anaconda Toolbox	0.4.0 Anaconda Assistant JupyterLab supercharged with a suite of Anaconda extensions, starting with the Anaconda Assistant AI chatbot.	Install
Anaconda Cloud Notebooks	Cloud-hosted notebook service from Anaconda. Launch a preconfigured environment with hundreds of packages and store project files with persistent cloud storage.	Launch
Jupyter Notebook	7.0.6 Web-based, interactive computing notebook environment. Edit and run human-readable docs while describing the data analysis.	Launch
Qt Console	5.4.2 PyQt GUI that supports inline figures, proper multiline editing with syntax highlighting, graphical calltips, and more.	Launch
Spyder	5.4.3 Scientific Python Development Environment. Powerful Python IDE with advanced editing, interactive testing, debugging and introspection features	Launch
VS Code	1.87.2 Streamlined code editor with support for development operations like debugging, task running and version control.	Launch
Anaconda on AWS Graviton	Running your Anaconda workloads on AWS Graviton-based processors could provide up to 40% better price performance	Launch
Oracle Cloud Infrastructure	Oracle Data Science Service OCI Data Science offers a machine learning platform to build, train, manage, and deploy your machine learning models on the cloud with your favorite open-source tools	Launch
Glueviz	1.2.4 Multidimensional data visualization across files. Explore relationships within and among related datasets.	Install
JupyterLab	4.0.11 An extensible environment for interactive and reproducible computing, based on the Jupyter Notebook and Architecture.	Install
Orange 3	3.34.0 Component based data mining framework. Data visualization and data analysis for novice and expert. Interactive workflows with a large toolbox.	Install

ANACONDA®

What is Machine Learning ?

“ Machine learning is the science of getting computers to act without being explicitly programmed ” - Andrew Ng

Artificial Intelligence and AI



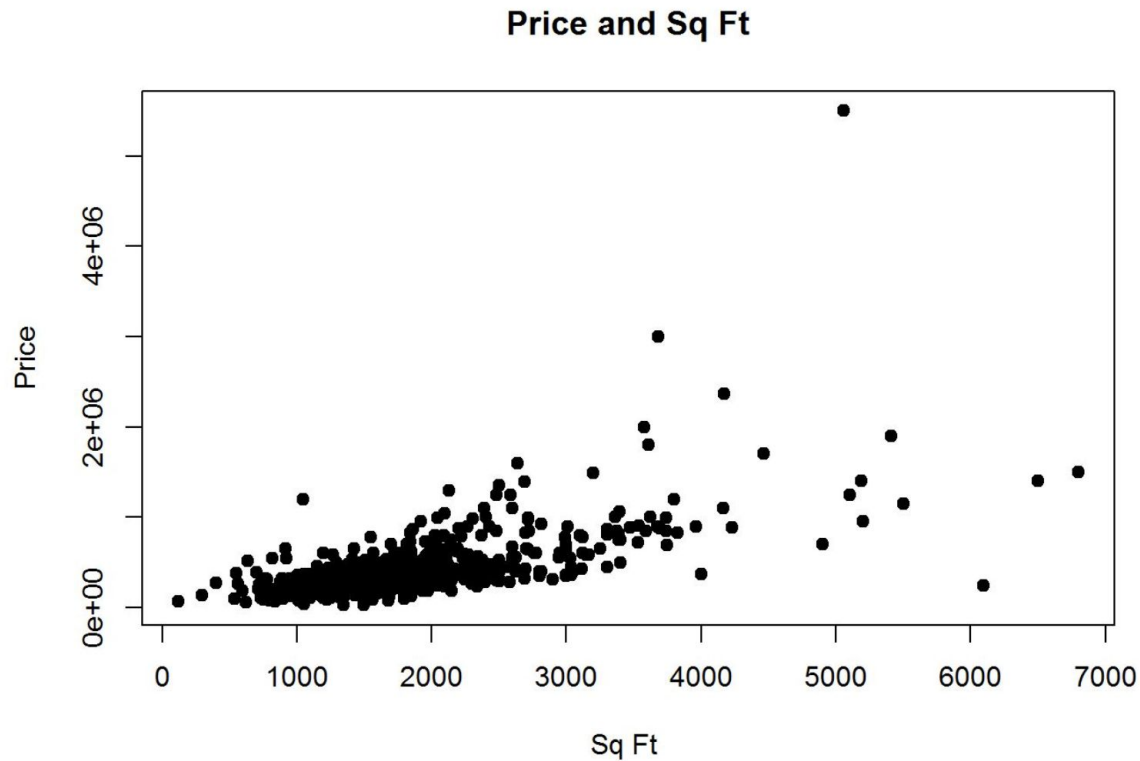
What is Artificial Intelligence?

“Artificial intelligence (AI) is the broader field focused on creating machines capable of performing tasks that mimic human intelligence, such as reasoning, planning, and language understanding. Machine learning (ML), a subset of AI, specifically involves algorithms that enable machines to learn from data and improve automatically, without explicit programming for each task.” - GPT-4o

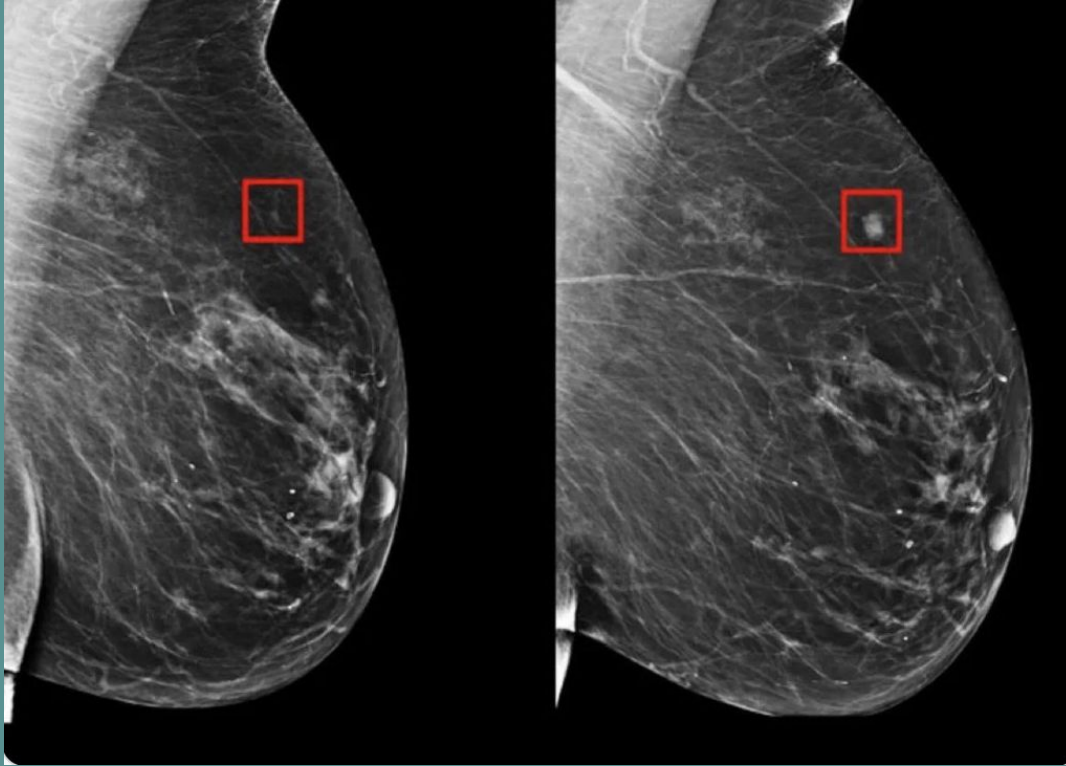
Structure of the course (for now)

- Supervised Learning
 - Simple Linear Regression
 - Multiple Linear Regression
 - Logistic regression
 - Regularization Techniques
- Deep Learning
 - Neural Networks
 - Convolutional Neural Networks
 - Transformers and Large Languages Models (LLMs)
- Unsupervised Learning
- Reinforcement Learning (RL)

Supervised Learning



Cancer Detection 5 Years in Advance



<https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2824353#:~:text=In%20this%20retrospective%20population%2Dbased,to%206%20years%20before%20diagnosis.>

Applications

Application	Input X	Output Y
Email spam detection	Emails	spam or not
Image Classification	Images (mixed)	Cat / Dog
Self-driving car	Images, sensors	move or not
House price prediction	Area, floors	Price

**A couple background
questions...**



Let's Get Our Hands Dirty

