

Fundamentals of Machine Learning

Yassine Laguel

Mail : yassine.laguel@univ-cotedazur.fr

About me

- Since Sep. 2023 - Associate professor (MCf) at Université Nice Côte d'Azur
- Jan. 2022 to Jul. 2023 - Postdoctoral researcher at Rutgers University
- Fall. 2022 - Departmental guest at the CSML at Princeton University
- Sep. 2018 to Oct. 2021 - Phd Candidate at Université Grenoble Alpes
- Sep. 2015 to Sep. 2018 - Engineering student at Grenoble-INP ENSIMAG

[illegible]

FUNDAMENTALS OF MACHINE LEARNING ?

- General context

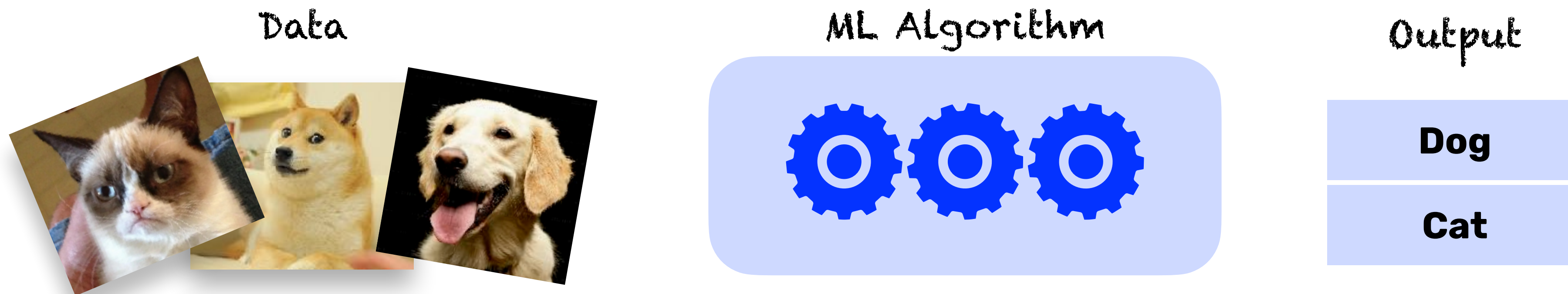
Machine learning (ML) is a field of study concerned with the development of algorithms capable of performing tasks without explicit instructions. To this end, algorithms tap into data to identify patterns, make predictions, and improve their performance over time through experience.

FUNDAMENTALS OF MACHINE LEARNING ?

- General context

Machine learning (ML) is a field of study concerned with the development of algorithms capable of performing tasks without explicit instructions. To this end, algorithms tap into data to identify patterns, make predictions, and improve their performance over time through experience.

Example : Image recognition

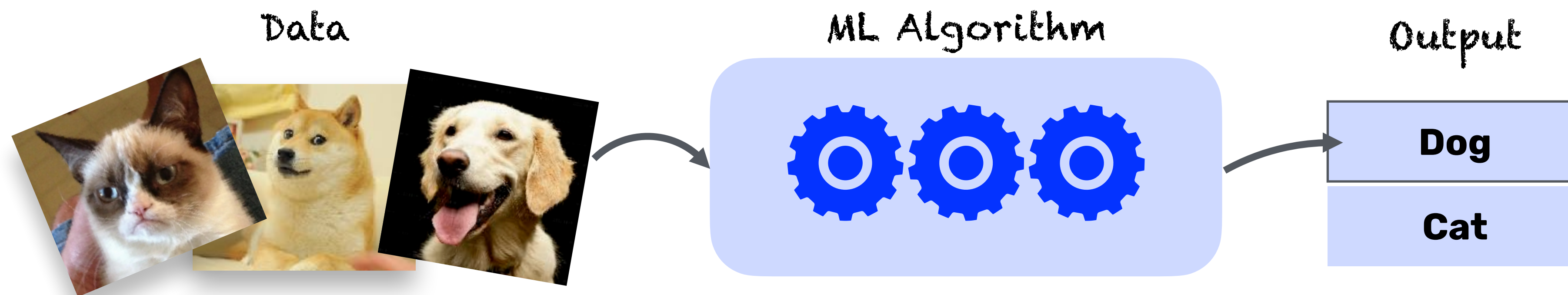


FUNDAMENTALS OF MACHINE LEARNING ?

- General context

Machine learning (ML) is a field of study concerned with the development of algorithms capable of performing tasks without explicit instructions. To this end, algorithms tap into data to identify patterns, make predictions, and improve their performance over time through experience.

Example : Image recognition

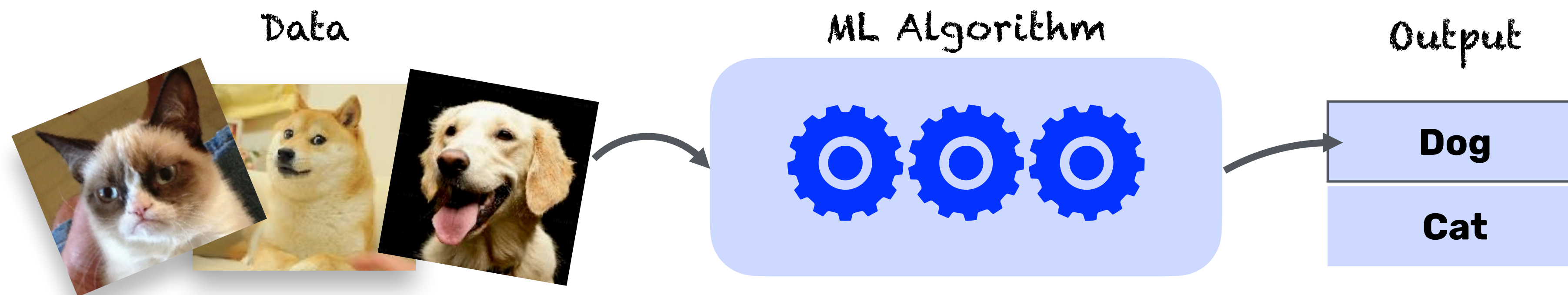


FUNDAMENTALS OF MACHINE LEARNING ?

■ General context

Machine learning (ML) is a field of study concerned with the development of algorithms capable of performing tasks without explicit instructions. To this end, algorithms tap into data to identify patterns, make predictions, and improve their performance over time through experience.

Example : Image recognition



- In this course, we will focus on supervised learning tasks, where the output is available for training.
- Yet the majority of applied learning are either unsupervised, or semi-supervised (partial availability of output, labelling error, etc...)

THIS COURSE

- IS NOT :

THIS COURSE

- IS NOT :

A python for Machine Learning course, but you may check

THIS COURSE

- IS NOT :

A python for Machine Learning course, but you may check

- UCA's curriculum!

THIS COURSE

- IS NOT :

A python for Machine Learning course, but you may check

- UCA's curriculum!
- The MOOC made by Scikit Learn's team

THIS COURSE

- IS NOT :

A python for Machine Learning course, but you may check

- UCA's curriculum!
- The MOOC made by Scikit Learn's team
- Google's ML Course

THIS COURSE

- IS NOT :

A python for Machine Learning course, but you may check

- UCA's curriculum!
- The MOOC made by Scikit Learn's team
- Google's ML Course
- Kaggle Competitions

THIS COURSE

- IS NOT :

A python for Machine Learning course, but you may check

- UCA's curriculum!
- The MOOC made by Scikit Learn's team
- Google's ML Course
- Kaggle Competitions

- IS :

THIS COURSE

- IS NOT :

A python for Machine Learning course, but you may check

- UCA's curriculum!
- The MOOC made by Scikit Learn's team
- Google's ML Course
- Kaggle Competitions

- IS :

A theoretical introduction to some fundamental concepts in ML

THIS COURSE

- IS NOT :

A python for Machine Learning course, but you may check

- UCA's curriculum!
- The MOOC made by Scikit Learn's team
- Google's ML Course
- Kaggle Competitions

- IS :

A theoretical introduction to some fundamental concepts in ML

- Proof based

THIS COURSE

- IS NOT :

A python for Machine Learning course, but you may check

- UCA's curriculum!
- The MOOC made by Scikit Learn's team
- Google's ML Course
- Kaggle Competitions

- IS :

A theoretical introduction to some fundamental concepts in ML

- Proof based
- Derived (whenever possible) from first principles

COURSE CONTENT

- Calendar

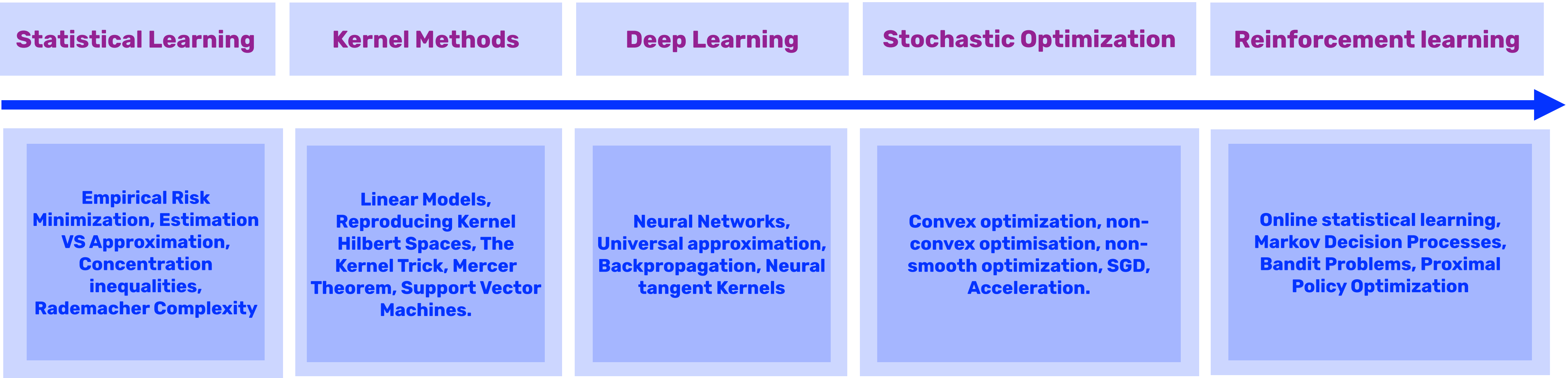
- | | | |
|---------|------------------|---------|
| ■ 19/11 | ■ 11/12 (Online) | ■ 15/01 |
| ■ 26/11 | ■ 18/12 | ■ 22/01 |
| ■ 4/12 | ■ 08/01 | ■ 29/01 |

COURSE CONTENT

- Calendar

■ 19/11	■ 11/12 (Online)	■ 15/01
■ 26/11	■ 18/12	■ 22/01
■ 4/12	■ 08/01	■ 29/01

- Topics covered (Tentative)



EVALUATION

- One Final Project (85%)
 - Study a research paper
 - Written report + Notebook + Presentation
 - Details to be shared later...

EVALUATION

- One Final Project (85%)
 - Study a research paper
 - Written report + Notebook + Presentation
 - Details to be shared later...
- Oral interrogations (15%)
 - Oral interrogation every lesson
 - Students are randomly selected
 - Oral interrogation every lesson