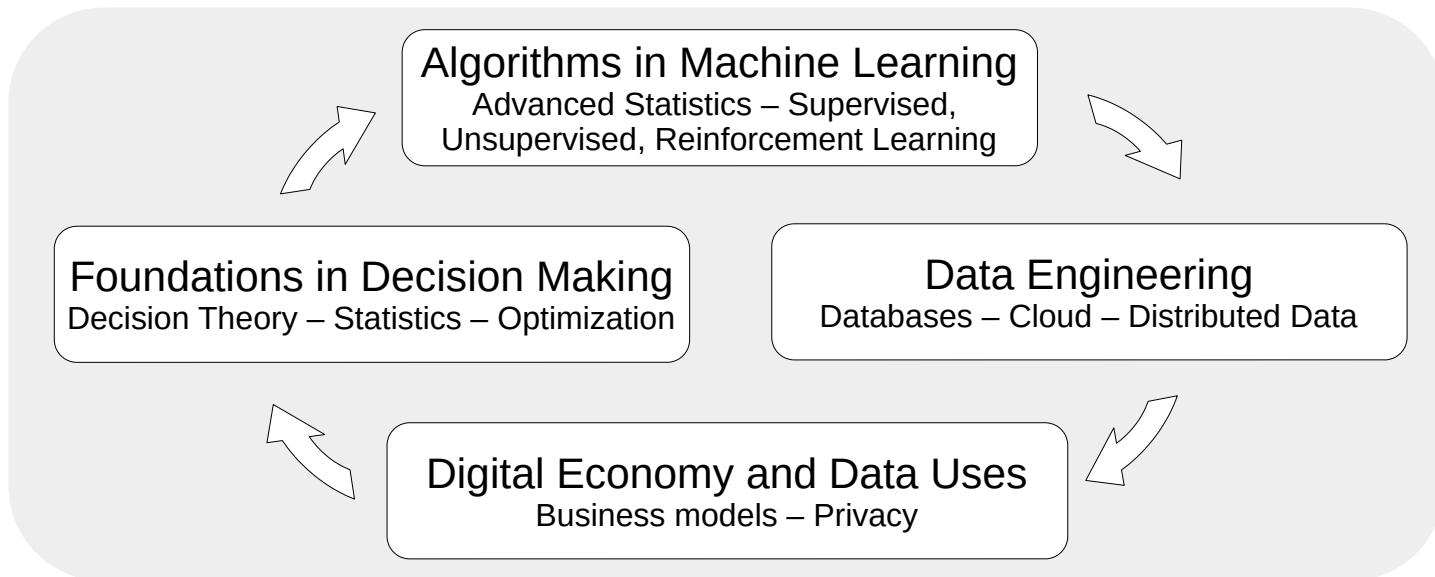
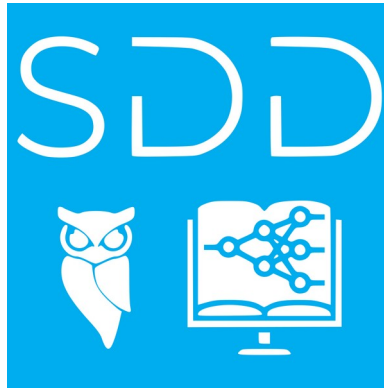


Sciences des Données et de la Décision



Cours en SDD

Faire

Décider
Optimiser
Planifier

Acquérir
Stocker
Accéder

Analyser
Explorer
Automatiser

Critiquer
Valoriser

Savoir

Optimisation
IA
Planification

Statistics
Machine Learning
IA

BDD
Archi de calcul

Business models
Privacy

Cours

(301) T. commun

(311) AML

(312) DE

(313) ENUD

(314) Hackathon

(319) Séminaires

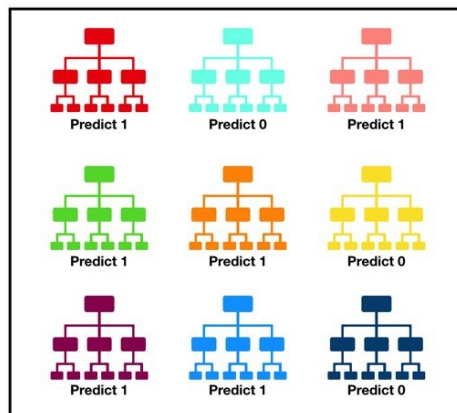
Planning

code module	cours / module	septembre	octobre	novembre	decembre	janvier	fevrier	mars
FSD301	Statistique	12 8 2						
FSD301	Optimisation dans les graphes	5 5						
FSD301	Optimisation Combinatoire		10					
FSD301	Optimisation stochastique		7 3	3				
FSD301	Théorie de la Décision			10				
FSD311	AML-lin	8 7						
FSD311	AML-ML		6 3 3 9	5				
FSD311	AML-DL			6	6 6 9	3	3	
FSD311	AML-RL					3 3	6 3	
FSD312	DE – DBMS	3 3	4					
FSD312	DE – Cloud systems			3 6	3 6 2			
FSD312	DE – Cloud DE					6 7	3 6	
FSD313	ENUD-business						10	
FSD313	ENUD-privacy					6	3	
FSD313	In-Depths							9 6
FSD314	Hackathon						20	
FSD319	DE – Fundamentals	6 9						
FSD319	Mini-hackathon			12				
FSD319	Seminars					3		7

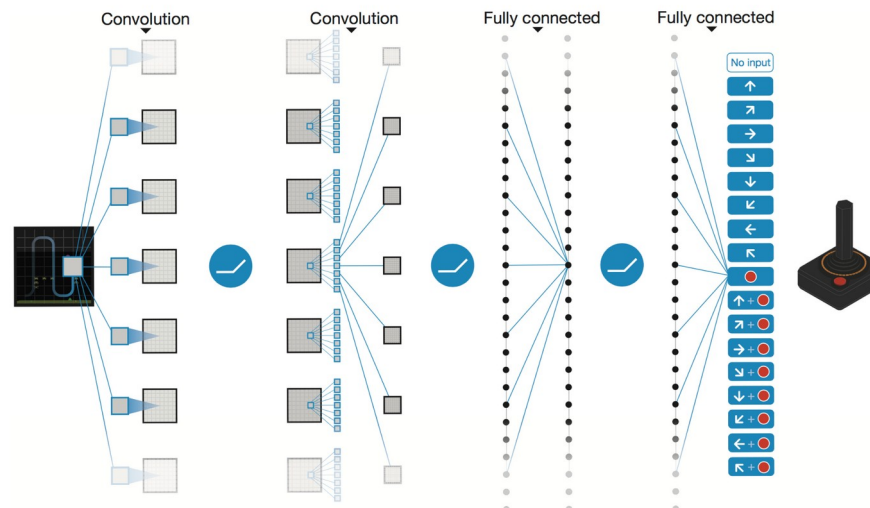
Algorithms in Machine Learning

Emmanuel Rachelson

- What are the algorithms for the analysis and modeling of information and decisions?
- How do they work, fundamentally and theoretically?
- How can we use them practically?
- Linear models, machine learning, deep learning, reinforcement learning
- 90 hours, September - February
- Evaluation through Jupyter notebook creation, peer and expert evaluation



Tally: Six 1s and Three 0s
Prediction: 1



Data Engineering (formerly Outils de Big Data)

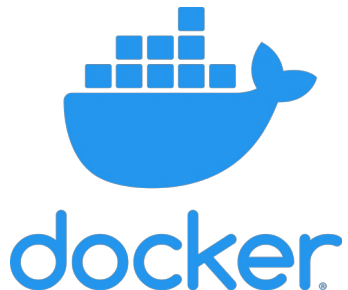
- How is information represented, stored, and connected?
 - What are different compute methods, and how do they relate to data type?
 - How can we interact with data, in different formats and at scale?
 - Data computation, data distribution, databases
-
- 50 hours, September - February
 - Evaluation on two projects, PostgreSQL and Dask, and quiz on cloud computing



Google Cloud Platform



PostgreSQL



Economie Numérique et Utilisation des Données / Digital Economy and Data Use

- How are data and algorithms used in practice in the private and public sectors?
- What are the business models of data and AI?
- What are the technical, legal, and ethical issues surrounding data and algorithms?
- 19 hours, in January
- Evaluation in mock trial of cases focusing on data, in-depth evaluation

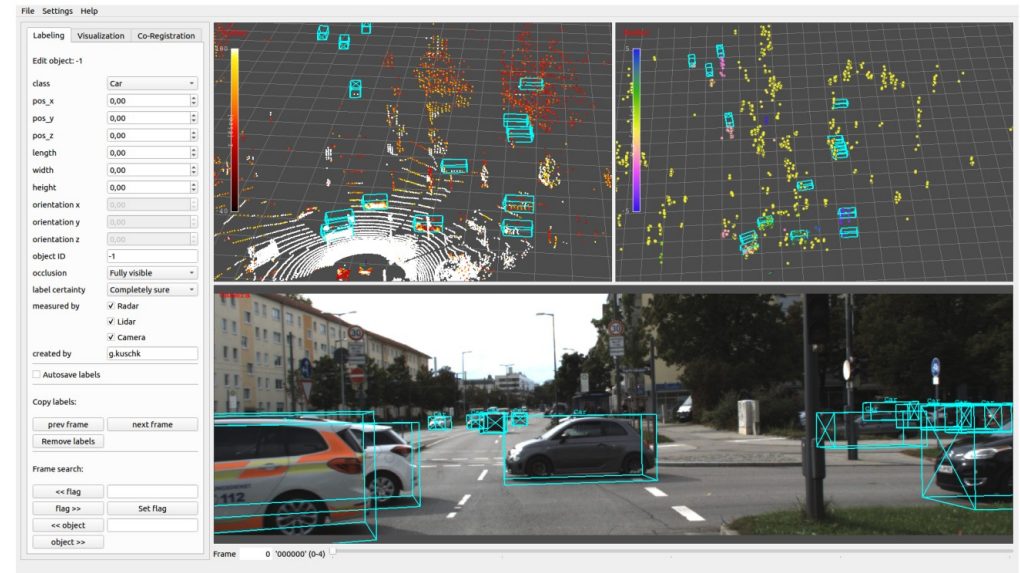


In-Depths

Parallele modules for exploring an SDD subject in more detail at the end of the year. Students chose a module to follow based on their interests.

- Business Intelligence
- Imagery
- Reinforcement Learning

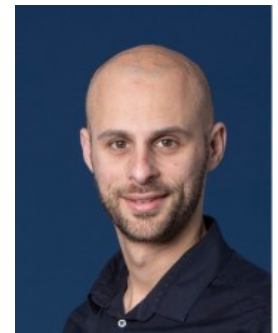
- 15 hours in March
- Selection of in-depth in January
- Evaluation depends on in-depth



Lionel Rigaud,
Trimane



Thomas Oberlin



Emmanuel Rachelson

FSD 314 - Hackathon

Practical application of SDD skills in teams of 3-5, working with industry partners

- 20 hours, Feb 26 – 28
- <https://supaerodatascience.github.io/hackathon.html>
- Evaluation based on project



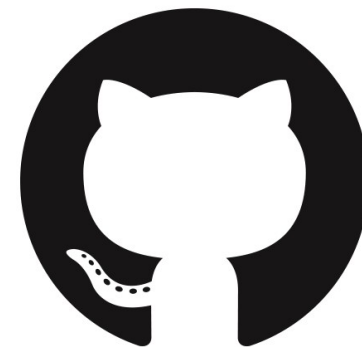
#	△	Team	Members	Score	Entries
1	▲ 1	Hacktruite		28.47519	33
2	▲ 1	InZeBoite		28.76340	22
3	▼ 2	Jolly Darwin		29.37246	44
4	—	Funny Shockley		32.55429	47
5	—	Des 8A comme ça 🍌		34.66995	3
6	—	Busy Maxwell		34.66995	20

FSD 319 - Seminaires

Classes and meetings which complete the SDD experience
No evaluation: optional but highly recommended

- Systems and Python, 10 hours in September
- 1 day hackathon in November
- 1 day workshop in March
- Invited lectures: suggested topics welcome

- Cafés SDD
 - 1 hour discussions with industry and research experts
 - Whenever you want!
 - Discuss data scientist career, AI topics, anything
 - Coordinated with delegates



Stage de fin d'études

- 4 – 6 month internships in companies, organizations, research labs
- April – November
- Project validation by [Emmanuel Rachelson](#)
- Projects should:
 - Have a descriptive title
 - Be sufficiently defined to understand the expectations
 - Have a link with the domain or filière
- Most internships validated by January
- For prospective PhD students: get an internship in prospective PhD lab
- Evaluation based on report and defense
- Defenses from August (contrat pro) through November
- <https://lms.isae.fr/course/view.php?id=2999>



Class materials: <https://supaerodatascience.github.io/>



- SDD**
- Home
- Classes**
- Foundations in Decision Making
- Algorithms in Machine Learning
- Tools of Big Data
- Digital Economy and Data Usage
- Hackathon
- Seminars
- Resources**
- For current students

Data and Decision Sciences

The **Data and Decision Sciences** program is a Master-level specialization in Data Science, modern Artificial Intelligence and Decision Support at [ISAE-SUPAERO](#).

[Overview presentation](#)

Syllabus

The program is composed of 240h of classes, shared between the following modules:

- Table of contents**
- Syllabus
- Foundations in Decision Making (FSD301, TC)
- Algorithms in Machine Learning (FSD311, AML)
- Tools of Big Data (FSD312, OBD)
- Digital Economy and Data Use (FSD312, ENUD)
- In-depth Modules
- Hackathon (FSD314)
- Seminars (FSD319)

Tools:

- Linux/OS X natively or Windows Subsystem for Linux
- Git, ssh, python, Jupyter
- Slack – invitation in email
- <https://www.linkedin.com/groups/12006478/>