Welcome

IML

Cédric Buche

ENIB

26 août 2019

Topics & Challenges

- Machine Learning

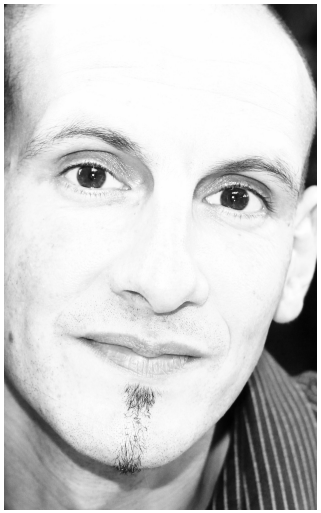
- Applications
  - Voice recognition
  - Spam detection
  - Stock market
  - Play chess
  - Self driving cars

Topics & Challenges

- Machine learning
  - Useful
  - Looks pretty complicated
  - IML : pretty easy + a lot of fun
- Interaction

Location

- Cédric Buche, Professor ENIB
- Mai Nguyen, Associate Professor, IMT
- Pierre De Loor, Professor, ENIB



Exams

- Ongoing assessment

Resources

- Calendar : http://siia.univ-brest.fr/w/index.php/EDT
- Documents : http://siia.univ-brest.fr/w/index.php/IML
- Contact : buche@enib.fr

Outlines

- Introduction : linear/polynomial regression, naive bayes, decision tree, logistic regression, neural network, SVM, HCI
- Framework / Data : data preparation, frameworks, hyper-parameters, data reduction
- Detection - Prediction - Tests : clustering, classification, feature extraction, K-Fold cross validation, confusion matrix, accuracy, precision, recall, F1 Score, overfitting/underfitting
- AI Example : classification of galaxies
- Navigation : Mesh, Graph, videos games, GNG, SGNG
- Enactive artificial intelligence / Developmental approaches
- Interaction
- Learning by demonstration, imitation/interactive learning
- Deep Learning

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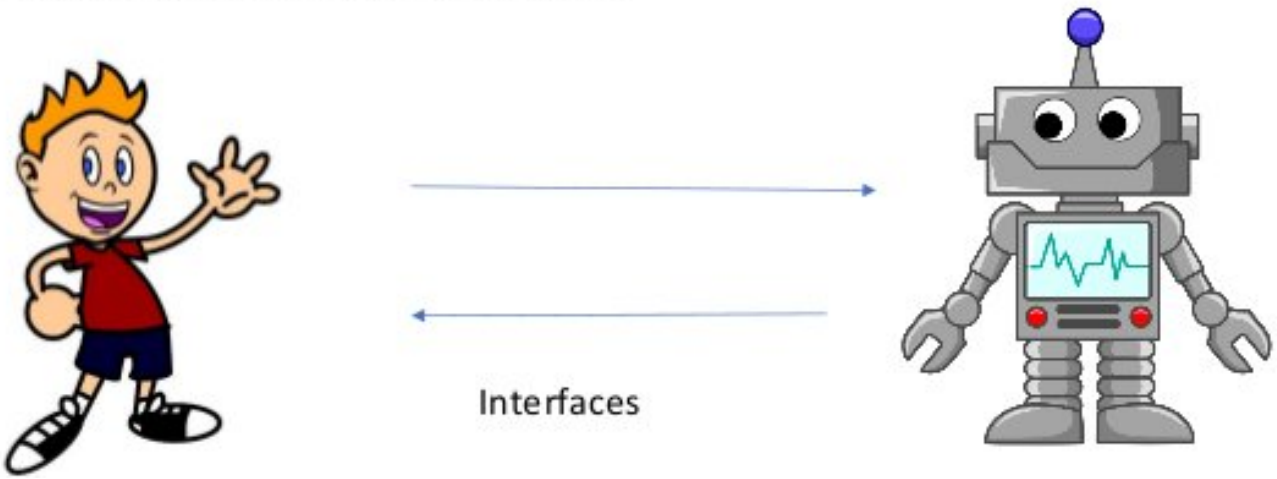
	Date week	Topics	Type	Room	Teacher	Topics
1	36	Introduction – Basic algorithms	Lecture		C. BUCHE	linear regression, polynomial regression, naive bayes, decision tree, logistic regression, neural network, SVM, HCI, IML
2	36	Data	Lecture		C. BUCHE	data preparation, frameworks, hyper-parameters, data reduction
3	37	Features extraction - Tests	Lecture		C. BUCHE	feature extraction, K-Fold cross validation, confusion matrix, accuracy, precision, recall, F1 Score, overfitting/underfitting
4	37	AI Examples	LAB		C. BUCHE	classification of galaxies
5	38	AI Examples	LAB		C. BUCHE	classification of galaxies
6	38	Navigation	Lecture		C. BUCHE	Mesh, Graph, videos games, GNG, SGNG
7	39	Enactive artificial intelligence / Developmental approaches	Lecture		M. NGUYEN	
8	39	Interaction	Lecture		M. NGUYEN	
9	40	Learning by demonstration, imitation learning, interactive learning	Lecture		M. NGUYEN	
10	40	Deep Learning	Lecture		P. DE LOOR	
11	41	Deep Learning	LAB		P. DE LOOR	
12	41	Deep Learning	LAB		P. DE LOOR	

HCI

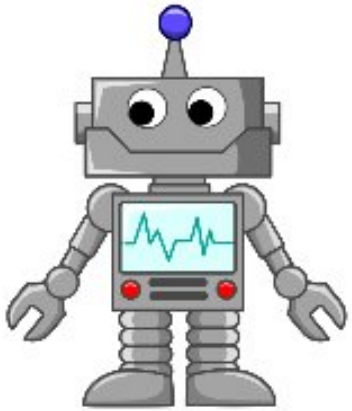
HCI :

Communication between a human user and a computer system, referring in particular to the use of input/output devices with supporting software



HCI

Vision : eyes
Sound : Ears
Touch : Body
Smell : Nose
Taste : Tongue



Vision : Camera
Sound : Micro/speaker
Touch : Keyboard/Mouse

IML

- Autonomous machine learning systems : often require intense engineering effort to be effective
- How machines can interact with people to solve problems more efficiently than autonomous systems ?
  - Humans interacting with robots to teach them to perform tasks
  - Humans helping virtual agents play video games given feedback on their performance
  - ...

IML

- Domain :
  - Machine Learning
  - Artificial intelligence
  - Human-computer interaction
  - Cognitive science
  - Robotics

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