

Deep Learning

Presentation

Learning objectives

Deep learning has enabled major advances in difficult problems such as perception (vision, hearing) and language processing (translation, etc.). This technology is invading many fields of application and is being integrated into industrial systems by a wide range of players, including some of the biggest names (Google, Microsoft, Amazon, Facebook, etc.).

The objective of the course is to provide training in the use of deep learning toolkits and in the design of simple systems based on standard architectures.

Besides, part of the course is dedicated to learning on textual data. This part focuses on practical aspects with the use of libraries such as NLTK, spaCy, GloVe, etc, and the study of recent models (Bert, GPT, Llama, Mistral).

Description of the programme

The course successively addresses:

- * Multilayer perceptrons
 - * Fully connected architectures and autoencoders
 - * Convolutional architectures
 - * Learning representations and embeddings
 - * Recurrent and Transformer networks and attention mechanisms
 - * Text preprocessing and analysis with statistical models, embeddings, etc.
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Generic central skills and knowledge targeted in the discipline

The aim is to become capable of implementing deep learning systems on standard tasks and data, as well as improving the classification and recognition of images, text and time series.

How knowledge is tested

Examination on machine.

Teaching team

- * Thierry ARTIERES
- * Ronan SICRE
- * Anne-Laure MEALIER

Total des heures

CM	Master class	30h
TD	Directed work	16h

Useful info

Name responsible for EU

Lead Instructor

Thierry Artieres

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