Deep learning and Computer Vision, 6 ECTS **UJM semester 2**

Learning outcomes

The course aims at providing fundamental basics about usage of Deep Learning in Computer Vision. Students will make use of the theoretical knowledge they have learned in the course “Machine Learning: Fundamentals and Algorithms”, deepen and apply them to many problems in computer vision such as image classification, object recognition, object detection, object tracking, …

Content

- Classical convolutional neural networks (CNN)
- Learning features (batch normalization, fine tuning, transfer learning, domain adaptation, self-supervised learning)
- Residual NN
- Recurrent NN and Long short-term memory networks (LSTM)
- Auto-encoders and Generative adversarial Networks (GAN)
- Applications to image classification and object detection

Modes of study

Course and project work, active participation

Teaching methods

Lectures (18 hours), exercises (18 hours) and lab sessions (18 hours).

Study materials

There is a huge amount of materials about deep learning and computer vision on the internet. I will take information here and there and clearly mention it to the students at the beginning of the class.

Evaluation criteria

Several exams, assignments and project work during this course. The average of all will give the final grade.

Prerequisites

Course of Machine Learning: Fundamentals and Algorithms.