Deep Learning to classify sports videos (30 ECTS credits)

The AI team at XO Wizard (www.xowizard.com) is looking for one or two students to write a master thesis project. The master thesis project will explore how to apply Deep Learning techniques to tag, classify, and break down videos of sports games and classify the behavior.

1 Background

One of the most time-consuming tasks for a team sport coach is watching multiple videos of their opponents and annotating what is happening in the game by hand to get data for further analysis. Imagine the time it takes for a coach to look at 2 hours of game film and then annotate each sequence with 20-50 tags, like “pass successful”, “corner”, “free kick”, “turnover”, “3-point shot made”, or “touchdown”.

Advances in Deep Learning makes this classification problem very interesting and possible to solve. We believe in a solution that enables a Deep Learning machine to “auto-tag” what is going on in the game, allowing coaches to focus on analysis rather than manual data entry.

2 Goal

The goal is to implement and test a couple of neural network architectures that classifies short video sequences for American Football.

3 Task description

- Work together with world-class talent in Deep Learning and Computer Vision (our Head of AI) and suggest Deep Learning architectures based on literature study and maybe some small scale experimentation. Could be convolution neural, RNN, networks, LSTM:s, dense networks, etc.
- Together with a football expert choose parameters from which to develop a prototype.
- Implement the suggested architectures in a prototype

5 Partners

- Partnering with 4 major US Colleges which provides us with game and practice data

6 Requirements

- Solid programming skills
- Solid applied math skills, especially in optimization
- Basic skills in machine learning algorithms

7 Contact information

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