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Urban games: How to increase motivation, interaction and learning of students in the schools

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The advances in communication technology and its appropriation by students have encouraged teachers and educators to create and deploy innovative pedagogical activities that explore the potential of mobile devices. In this context emerges a new educational paradigm – the Mobile Learning – that takes advantage of the flexibility, adaptability and ubiquity of mobile devices that allow students to experience learning environments that go beyond the traditional classroom walls. According to the literature, the Mobile Learning paradigm incorporates and combines a multiplicity of different variables: time, space, learning environment, content, information technology, the mental abilities of the learner and the method. Inside the emerging paradigm of m-learning, arises the so-called location-based mobile experiences, which focuses in the process of gathering information in situ as central to student´s learning in a personalized and motivating way. "Urban Games" are location-based mobile experiences that add context to knowledge, whereas the mediation between the game and the user is done through mobile technologies. However, the design and implementation of an Urban Game is not a simple process, since it must take into account several principles and anticipate possible constraints for students. The research presented in this paper was carried out in an effort to understand the importance of mobile location-based games in outdoor education and involved the design, upon a review of literature, of an urban game that relates the advantages of flexibility, ubiquity and interactivity offered by mobile technologies with gaming and learning. The urban game was named "MobiGeo" and enrolled a group of 173 seventh grade geography students from a basic school in the north of Portugal. The activity was evaluated through the fulfillment of a questionnaire that measured three variables associated with experiencing digital games: motivation, interaction and perceived learning.

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How to train a CNN on 1 million images when your data is continuous and weakly labeled towards large vocabulary statistical sign language recognition systems

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Observing the nature inspires to find answers to difficult technical problems. Gesture recognition is a difficult problem and sign language is its natural source of inspiration. Sign languages, the natural languages of the Deaf, are as grammatically complete and rich as their spoken language counterparts. Science discovered sign languages a few decades ago and research promises new insights into many different fields from automatic language processing to action recognition and video processing. In this talk, we will present our recent advances in the field of automatic gesture and sign language recognition. As sign language conveys information through different articulators in parallel, we process it multi-modally. In addition to hand shape this includes hand orientation, hand position (with respect to the body and to each other), hand movement, the shoulders and the head (orientation, eye brows, eye gaze, mouth). Multi-modal streams occur partly synchronous, partly asynchronous. One of our major contributions is an approach to training statistical models that generalize across different individuals, while only having access to weakly annotated video data. We will focus on a new approach to learning a frame-based classifier on weakly labeled sequence data by embedding a CNN within an iterative EM algorithm. This allows the CNN to be trained on a vast number of example images when only loose sequence level information is available for the source videos. Although we demonstrate this in the context of sign language, the approach has wider application to any video recognition task where frame level labeling is not available.

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