Multimodal data challenge

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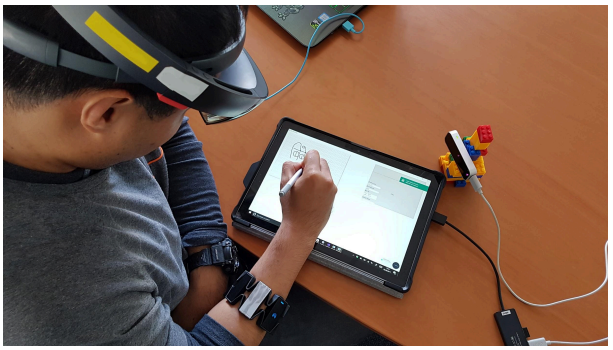
LAK Hackathon 2018

benefiting Learning through novel data sources, standards and infrastructure



5-6th March 2018, Northcote room

Learning Analytics & Knowledge Conference 2018, Sydney Australia

https://lakhackathon.wordpress.com/

INTRO

Practical skills training, co-located group interactions, and tasks alternative to the classic desktop-based learning scenario represent still a big set of learning activities taking place in the classroom and at the workplace.

Physical interactions are most of the time *offline* moments, not captured by the data collection therefore not included in the datasets used for data analysis.
Bringing these moments into account requires extending the data collection from conventional data sources (LMS, MOOC data etc.) to data "beyond user-computer interaction" coming from multiple modalities.

These **multimodal data** can be classified into

1) data of the learner's behaviour, including motoric and physiological data;

2) data of the learning situation, including social context, learning environment and learning activity.

Most of these aspects can be monitored through wearable sensors, cameras or Internet of Things (IoT) devices.

GOALS

Multimodal data have the following potential GOALS

- Bridging the gap between learner's complex behavioural patterns with learning theories (Worsley, 2014). Connect multimodal sensor data to human-driven qualitative interpretations, like expert reports or teacher assessments. The latter, that are more qualitative and human-driven, describe dimensions that the sensors cannot directly observe, such as learning outcomes, cognitive aspects or affective states.

- Be used as historical evidence for the analysis and the description of the learning process (Blikstein, 2013)
- Be used as the base to drive machine reasoning and adaptation during learning.
- Expanding the horizon of the Learning Analytics community towards intelligent tutoring, i.e. the design of intelligent computer agents empathic to the learners which work as an *instructor in the box* (Polson, Richardson, & Soloway, 1988).

Read more:

- LAKHackathon submission Multimodal challenge: analytics beyond user-computer interaction data
- CrossMMLA18 submssion The Big Five: Addressing Recurrent Multimodal Learning Data Challenges

HACK!

The workshop will be divided in three tracks:

1) HUB - the collection and storing of multimodal data sources.
2) VIZ - the visualization and annotation of multimodal learning experiences
3) XAPI - the creation of xAPI statements with multimodal data

Group 1. HUB

This group will be dealing the collection of data coming from multiple sensor applications.

Tool: the **LearningHub**
Github repo https://github.com/janschneiderou/LearningHub

Research questions:
- How to improve the LearningHub?
- How to better store the sensor data?
- Is it possible to do live streaming of the data collect?

Group 2. VIZ

This tool allows the visualization and the annotation of different multimodal recordings generated by the LearningHub.

Tool: the **Visual Inspection Tool**
Github repo https://github.com/dimstudio/visual-inspection-tool/

Research questions:

- How to improve the Visual Inspection Tool?

Group 3. XAPI

This group will deal with the integration of Experience API with Multimodal Data.

Resources:

Research questions:

- How to best integrate Experience API statements with multimodal sensor recordings?

RESULTS

Alternatively you can get in touch sending an email to For info: daniele.dimitri at ou.nl

Final results slides

LICENCE