Project Description

SeeAI - Class Insight Analytics

Team:

* Sherzod Niyazov
* Bedilbek Khamidov
* Sardorkhuja Ibrokhimov
* Shakhobiddin Urmanov
* Abdulloh Askharov

AI is widely considered to be the disruptive technology for many fields and particularly for education, the more mature the AI becomes, the more people get unreasonably worried about their jobs, privacy and identity. This fact is certainly an obvious threat for the future of the AI field, as the number of people who look at it with caution is increasing. As participants of this AI Guardians competition, our team is a strong supporter of teacher-and-AI symbiosis, and this is the reason why our team and the project has evolved.

Historically getting instant feedback from students has been practically impossible for schools. For centuries feedback surveys have been the only available method of assessing the lecture and the lecturer. So far this leads to that the educational methodologies haven’t been adaptive or student-centered. For example, often teachers prepare one lecture or study material for all classes that he/she teaches. This might be a problem because every human’s learning performance and interest in a particular subject is different, hence, every class’s performance and interest will be different.

Shortly, our project is what its title says, i.e., class insight analytics where autonomous AI-powered computer vision technology tracks all the events going on inside a physical classroom. To be more specific, it tracks all the gaze information of every student and is able to instantly detect where that gaze of a student is directed at, additionally, it tracks all the sentiment insights of every student in every moment of time during the class time. This possibility can give precious informational insight for the academic staff of schools which can give real-time feedback to the performance of teachers.

With the Microsoft Azure cloud solutions, its feasibility is possible by using provided services from Azure such as Cognitive services and ML.

As a major data source of our AI project, we chose the video data from classes. The streaming video is estimated by our cloud infrastructure.

As machine learning algorithms, we used Azure Cognitive services Face API to get emotions insights, customized YOLOv3[[1]](#footnote-1) for fastest detection of the ROIs for people’s head, we used OpenFace[[2]](#footnote-2) for head pose and gaze detection. For all of the custom machine learning algorithms, we have used COCO dataset to train.

And one attractiveness of our project is that it is applicable to many other fields so that it is not limited only with education. Hence, the core technologies can be applied in cinemas, fashion podiums and in any place where you need instant feedback from the audience. In addition to all of that, deployment of the project is very easy, to use SeeAI schools will need only a camera or cameras and the internet connection.

In retrospect, even though there is a big difference between what we have implemented so far and what our vision has proposed, in these time constraints we have pretty much of job. You can test the demo in this link: <http://52.191.135.20:8080/>. For sake of cost saving, we have turned off the VM which is responsible for all of the heavy calculations. If you want to use it by uploading your own video, you have to turn it on by clicking a button in the page.

1. **YOLOv3: An Incremental Improvement** Joseph Redmon, Ali Farhadi, arXiv, 2018 [↑](#footnote-ref-1)
2. **OpenFace 2.0: Facial Behavior Analysis Toolkit** Tadas Baltrušaitis, Amir Zadeh, Yao Chong Lim, and Louis-Philippe Morency,IEEE International Conference on Automatic Face and Gesture Recognition, 2018 [↑](#footnote-ref-2)