BLG521E Artificial Intelligence Project Proposal

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1 THE PROJECT

The aim of the project is to develop **a concept software that provides the most compatible advertisement according to the population distribution in front of a billboard**. The software tries to show the advertisements of the companies whose target is closest to the current audience by extracting the age and gender statistics of the audience comes from the camera feed on top of the billboard. The algorithm will be running on **Python3** and models will be created, trained and executed on **Keras** or **PyTorch**. **State-of-art object detectors** and **own estimators** will be used.

2 KEY ASPECTS

- The companies will send the advertising videos to the fictitious company of me by specifying which audience they are targeting.

- A billboard prototype with a camera on it will detect the faces of those passing by and try to predict age and gender.

- The system will generate a statistic of the values it is currently measured and predicted

- The advertisements offered by the companies which have the most similar statistical values with the measured ones will be published at that moment

- This layout will repeat periodically depending on the period of ad renewal

3 CHALLENGES

- A face detector must be trained

- An age regressor must be trained

- A gender predictor must be trained

- A cost function must be created to select the best-fitting advertisement for given crowd, properly

- A search algorithm must be used to optimize the cost function in minimum times of iterations

4 CONTRIBUTION

This technology is currently being used for reporting an evrionmental analysis about any billboard to the companies, so these companies can select which billboards will show their advertisements. With this software, any advertisement can be shown on any billboard, if the crowd is targeted by a company. In this way, companies can publish their advertisements without spending any field research, just by appearing and spending money when they reach their goals. This can be a potential part of programmatic advertising world.