**ADSEE Project**

**Applied Data Science Educational Ecosystem**

**Retail Marketing**

**Operationalization of Results Whitepaper**

In the future, AI will make the shopping experience even better for customers. For example, a customer will be able to bring one or several items to a nearby display to examine prices and characteristics. Digital signage might even enable comparing several products in no time. That way, components of online shopping can be brought to the real world and create an omnichannel shopping experience.

In the content production area, as mentioned earlier, AI can detect a rainy day or chillier weather, and serve advertisements based on that, like for example, umbrella or sunglasses vendors come out in real life. Ads can also be displayed based on not only analytics but also based on weather, season or time of day, week, year and more. That way, clients would receive better advertisement scheduling like they are used to having online.

**Privacy concerns**

As with many other new technologies, so also with facial recognition technology, a large number of consumers might be concerned about their own privacy and the protection of personal data.

Taking into account the legal framework and protection of passers-by, GigBiG makes sure that it does not store any personal data and that the data is anonymous, which means that it cannot follow the habits of any particular potential customer.

Unlike traditional digital advertising, fortunately, tracking DOOH audience data is different from what is done online, which means that many of these problems are greatly reduced, if not eliminated. DOOH audience data is collected and stored in a state of semi-anonymity. Simply put, although audience data is tracked, an individual’s personal data is never stored.

GigBiG uses anonymous video analytics software that uses video analysis algorithms to see how many people are in front of and around the screen, whether they looked at the screen or not. It also collects basic demographic data such as age and gender.

By accumulating these different types of data, a complete but anonymized picture of the composition of the audience emerges. From this, it is possible to detect patterns of common behavior towards people’s demographics; unique identifiers, however, are never collected that can identify any of the data specifically to any one person.

**Client brief**

GigBiG received the client brief from Samsonite with following information:
Samsonite is the worldwide leader in superior travel bags, luggage, and accessories combining notable style with the latest design technology and the utmost attention to quality and durability. For more than 100 years, Samsonite has leveraged its rich design heritage to create unparalleled products that fulfill the on-the-go lifestyle needs of the business professional. Samsonite history is rooted in innovation from inventing the first truly durable tapered vulcanized fiber suitcase to developing technologies that make the bags more comfortable, lightweight and worry free. The brand strives to constantly evolve Samsonite world renowned comfort, bringing customers the most advanced technologies available today in language, bags and backpacks.

**Samsonite**created a new campaign with the objectiveto increase brand awareness and 20% demand of the Samsonite backpacks.The campaign consists of **three videos intended for both a male and female population between the ages of 20 to 40 and those who already own a backpack.**The target audience should belong to ClassA, ClassB and a chunk of ClassC6 whose rate of life requires: comfort, functionality and style. People wearing these backpacks should need to feel natural, relaxed, authentic, with a young spirit, free, simple and healthy.The main consumer message is “Backpacks for wherever the day takes you**”**.

Upon receiving the client's brief, GigBig divided the flow of the system into four phases: video/image collection, (multiple) object detection from video media, the identification of target groups and targeted advertising.

In the initial stage, images were captured by video camera and served as input for the system. These images were processed in the system and passed to algorithms.

In the second phase, the detection of (multiple) objects was implemented to detect different types of objects in a single image or frame. The algorithm then recognized the discovered faces by gender and age group. An analysis was made to determine the majority group at that point, and the results went back into the algorithm for selecting ads.

So, how does facial recognition work? It depends on the technology that you use, but here are the basic steps:

In step one, a picture of face is captured from a photo or video. The face might appear alone or in a crowd and the image may show the face looking straight ahead or nearly in profile.

Then, in step two, the facial recognition software reads the geometry of the captured face. Key factors taken into consideration are the distance between eyes and the distance from forehead to chin. The software identifies facial landmarks that are key to distinguishing one face from another. The result is a single facial signature.

Step three consists of the comparison of that facial signature, that is in fact a mathematical formula, with the stored examples in a database. The detection phase of facial recognition starts with an algorithm that learns what a face is. Usually, the creator of the algorithm does this by “training” it with photos of faces. If you stuff in a huge number of pictures to train the algorithm, over time it learns the difference between, say, a backpack, and a face. When another algorithm for analysis is added, and yet another for recognition, a recognition system is created.

The fourth step depends on the purpose of the facial recognition. If it is used to unlock your smartphone or verify your identity than the face signature is compared to an image already stored in the database. In case of GiGBig, such images are used to do a facial analysis and assess a person's age or gender and then, based on that image information, a most suitable ad is reflected on a digital screen for the current viewer(s).

**Discussion Question #4:**The technology is improving — but the bigger issue is how it’s used. Just because a technological capacity exists, does that mean it should be pursued? What factors should companies consider when determining whether or not to launch an AI-based advertising campaign?

In conclusion, intelligent targeted advertising systems is presented to advertisers in order to provide a better experience of advertising to both advertisers and audiences. An intelligent targeted advertising system consists of several integrated functionalities, including gender and age recognition, the identification of several different facilities.

The technology of the multiple detection of objects enables detection of different types of objects in one picture, and enables the detection and recognition of human faces and different types of objects. Facial recognition would be carried out in order to recognize gender and age on the basis of characteristics. Multiple object recognition technology is used for different categories of object recognition based on their unique characteristics. All models used in the recognition system are trained in advance for the concept of machine learning to ensure more accurate results and better performance.

Since the system is capable of displaying the target content of advertisements, it is a huge benefit for the advertisers as they could significantly reduce their promotional costs due to the effectiveness of targeted advertising. As for the public, they will be exposed to content that is more relevant to them and will be offered specific goods and services they might need.

**Discussion Question #5:**Can artificial intelligence help traditional, non-digital businesses catch up, or will it further widen the divide between the agile and data-driven internet pure players and historical brands that are lagging behind?

How can AI tangibly provide new sources of value for businesses and institutions?

Functionally, AI technologies find an application in the value chain, but some parts of the value chain receive more attention than others. In this whitepaper, we have covered just one example of the useful use of AI technology in everyday business.

Finally, its application today, along with further development and improvement of technology in the future, is far wider than we can imagine. Trade, education, medicine, security and transportation are just some of the industries that are already basing their business on automation, forecasting analysis and machine learning.

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