**Case of Support – International Entrepreneurship Internship**

Snir Hordan

27/06/18

I am a Mathematics with Computer Science undergraduate student. I have also completed the official Technion Web Developer course (specified in my resume). I took Udacity’s Deep Learning and Artificial Intelligence nano-degrees with projects using RNN’s,CNN’s, Fully-Connected NN’s, and Hidden Markov Models. I have done a website project with a hosted backend with a Material Design inspired front-end. I am planning to use the data AsiaYo has about vacation reservations to provide insights into how we they can increase consumer spending on their platform. My approach is to use the timing and background of the consumer in order to tailor the experience for him. Specifically, I want to leverage RNN’s in order to reach that goal since they provide accurate feedback on long-term data, such as seasonal and cultural trends, and apply that to the consumer.

Title: Statistical Analysis of Seasonal Consumer Purchasing Behavior

Consumer purchasing behavior is changing based on the period in the year. For instance, during Christmas there is greater demand for Christmas trees and non-essential gifts. In the tourism industry, this is particularly evident. During the summer people prefer destinations with beaches and hotels with pools. Understanding the cultural underpinnings of these preferences is crucial for more accurate recommendations for the consumer. This will increase the amount of purchases a consumer would like to make, and to provide extra packages that will be happily purchased by the relevant consumer.

I intend to use machine learning algorithms, such as Random Forest and Least Squares, along with deep learning methods, such as RNN’s, which are useful for long-term memory tasks like understanding cultural and seasonal contexts in order to provide greater insight into these trends and how we can increase consumer spending with more targeted recommendations.

Let’s think about the consumer purchasing process. The purchase decision begins with the *problem recognition* stage which occurs when the consumer identifies a need, typically defined as the difference between the consumer's current state and their desired state. The strength of the need drives the entire decision process. *Information search* describes the phase where consumers scan both their internal memory and external sources for information about products or brands that will potentially satisfy their need. The aim of the information search is to identify a list of options that represent realistic purchase options. Throughout the entire process, the consumer engages in a series of mental *evaluations of alternatives*, searching for the best value. Towards the end of the evaluation stage, consumers form a purchase intention, which may or may not translate into an actual *product purchase*. Even when consumers decide to proceed with an actual purchase, the decision-process is not complete until the consumer consumes or experiences the product and engages in a final *post purchase evaluation*; a stage in which the purchaser's actual experience of the product is compared with the expectations formed during the information search and evaluation stages. The stages of the decision process normally occur in a fixed sequence. However it should be noted that information search and evaluation can occur throughout the entire decision process, including post-purchase. We are very concerned with the information phase. This is where a website that is trying to get the consumer to book vacations tries to tailor-make the experience to the consumer in a way that he will be receptive to.

Lets dive into the information phase to better understand what I’m looking for. During the information search and evaluation stages, the consumer works through processes designed to arrive at a number of brands (or products) that represent viable purchase alternatives. Typically consumers first carry out an *internal search*; that is a scan of memory for suitable brands. The **evoked set** is a term used to describe the set of brands that a consumer can elicit from memory and is typically a very small set of some 3- 5 alternatives. Consumers may choose to supplement the number of brands in the evoked set by carrying out an *external search* using sources such as the Internet, manufacturer/brand websites, shopping around, product reviews, referrals from peers and the like.

The fact that a consumer is aware of a brand does not necessarily mean that it is being considered as a potential purchase. For instance, the consumer may be aware of certain brands, but not favorably disposed towards them (known as the *inept set*). Such brands will typically be excluded from further evaluation as purchase options. For other brands, the consumer may have indifferent feelings (the *inert set*). As the consumer approaches the actual purchase, he or she distills the mental list of brands into a set of alternatives that represent realistic purchase options, known as the *consideration set*. By definition, the consideration set refers to the “small set of brands which a consumer pays close attention to when making a purchase decision”. This set is exactly what I would like to optimize in AsiaYo and use the tools I described above to do it.

**Internship plan**

I want to better study deep learning methods of optimizing recommendation engines in the context of seasonal context. I would like to work in AsiaYo since it is a travel site that relies heavily on the culture and time of the year in respect to its consumers’ decision processes and motivation to book a vacation in a certain location around the world. I think the most important thing is to choose the right neural network architecture in order get the best results. I will try to optimize their platform using the data they have acquired.

My goal is to create a functional algorithm or statistical evaluation model that is based around consumer behavior with respect to culture and seasonal influences. This internship will greatly benefit his goal and provide the right data for this project. AsiaYo will be rewarded by getting more perspective on how they manage and produce insight from their data and how to better offer consumers better products. Long-term this project can be used as a basis for my master thesis or other eventual projects about data analysis and consumer choice.