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Statement of Purpose

Scholastic Performance

Driven by the fascination of computer scientist, I finally entered ACM Honoured Class, one of the top computer science programs in China. As a freshman, I participated in MCM(Mathematics Contest in Modelling) and got the meritorious winner prize(top 15% over the world) of the schedule to terminate Ebola Virus.

I always got great scores in specialised courses. I love these courses which build unique core framework as a breakthrough and cultivate my creative thinking. There have been two courses I would like to introduce.

One is the theoretical course, Algorithm Design and Analysis. I would never forget that I finish my homework problem independently. What's more, several of them were solved just 30 years ago. I also provided an outstanding presentation of PPAD-complete problems in class. To prepare it, I followed related papers with mathematical thinking cultivated. Finally, I was the only one of those who finished the last question in final exam to put forward and prove an approximation algorithm with minimal spanning tree of Manhattan Distance. Therefore, I got the top two scores with 10 more points than the average.

The other is the project course of operating system. Instead of the building of operating system, we chose the more challenging task of discovering effective solution to allocate resources to each process in some order and still avoid a deadlock. We spilt the task into three stages, detection, resolution and prevention of deadlock. For each stage, I read several books and papers(even found errors in some) about related algorithms and kept contemplating possible designs even while taking a shower. One night I found myself debugging while sleeping, and interestingly, I solved the problem in my dream and soon woke up to confirm it! Moreover, our group was the only group in the task to obtain the professor's applause with the best grade.

Research

For the outstanding ability of model construction and the excellent scores in algorithm course, I started my research on analysing the cooperative or competitive relationship in the Internet platform. My advisor, Prof. Xiaotie Deng, noticed that there are a special case of product pricing in the Internet platform, different from traditional market. For example, in Taobao market platform, the biggest Chinese online market, the revenue, the credibility, the government intervention and other characteristics could always be the influence factor. Unfortunately, the research work was delayed because we found several models failed to fit real dataset.

With half a year went by, this semester, I continue my research work in APEX laboratory, SJTU, which focuses on the research and development in the data and knowledge management area. Within two months, I focus on my current interests, the improvement of conversion attribution models on the area of computational advertisement.

Future Plans

My experience has developed in me some characteristics essential for my future career, the courage to challenge myself, the perseverance throughout the task and most importantly, the passion which inspires me to creativeness. Data & knowledge mining could discover the potential linkage and reconstruct more convincing model. I enjoy predictability in reasoning and structural thinking in analysing. Hence, I would like to intro-duce two directions I am focusing on.

One direction in the area of data mining is about disaster monitoring. On one side, I seek to improve early-warning technology for natural disaster like earthquakes, storm surges, etc. I'm very interested in it owing to terrible experience where I suffered from Wenchuan Earthquake as a 13-year-old boy in Chengdu, the seismic core area and my hometown. I wish that my research can mitigate the losses caused by natural disasters. On the other side, we are confronted with more and more serious environment problems, such as water pollution, light pollution and noise pollution. In fact, they can be effectively reduced by using more powerful data analysis. With statistics of Spatio-temporal data, I'll explore more general methods and give persuasive advices to governmental agency or public organisation.

The Other direction is the analysis on intersection between Computer Science and Economics. Some questions have long puzzled me. For example, is needed to analysis user's behaviour in Advertisement Recommendation? Which is the dominant factor on user's decision? Could we find an averaging opinion in a social network by analysing graph structure? In short, I hold the belief that there are too many topics to discover and analysis.

With the ever-increasing level of my work, I'm feeling strongly that the theoretical study and actual practice are equally important and dependent on each other. In order to convert my undergraduate study into full play, I hope I can work with you and discover more brilliant ideas.