

BUSINESS CASES – BACHELOR BUSINESS ANALYTICS

Evert Haasdijk

Filtering and Compressing GPS data

Harbour authorities maintain large databases with shipping data; every ship that sail in a harbour transmits its current location, heading and speed. This serves as the basis for billing, but also to inform planners for future developments. The amount of data is prohibitive, and noisy GPS signals can have deviations of up to a mile. This student developed filtering algorithms to accurately estimate the real position of ships in real time, and to reduce the amount of data points that need to be stored.

Predicting Educational Success

A major issue in education is identifying students that need help beyond what is normally offered in the curriculum to finish their studies, in particular in vocational schools. This project used machine learning to identify students that would probably be delayed in finishing their studies. This was done using data about previous school results and about the student's progress in the current curriculum. Using these indicators, schools can identify students in trouble while there is still time to solve them without too much delay.

N.B.

Planning the future lay-out for the harbour of Amsterdam

For the port of Amsterdam the use of harbour locations was analyzed. Different data sets were available: GPS data from boats, data from magnetic sensors at harbour locations which can detect (with some error) boats, and data from several cameras at relevant locations. The data were analyzed and combined, leading to conclusions on the accuracy of the measurements and the use of the harbour locations.

Based on this the port of Amsterdam decided on a way to measure the use of its harbour locations which is instrumental for the planning of the future harbour lay-out.

Rob van der Mei

Predicting residual lifetimes of airplane components and component failures

Every airplane consists of a huge number of components, each of which can be subject to wear and failure. KLM Engineering & Maintenance (E&M) is in charge of making sure that all components in an airplane work properly. Therefore, it is crucial for KLM E&M to be able to accurately predict – and to timely anticipate to – component failures depending on the age/mileage of components, such that components can be replaced before failure occurs. Motivated by this, the goal of the project was to develop models to accurately predict residual lifetimes of components and component failures, on the basis of historical data about component lifetimes. This helped KLM reduce failures and maintenance costs.

Mathisca de Gunst

Predicting the right market and the new opportunities for air cargo

The company WorldACD, a company that provides market data on air cargo, presented a business case to develop a method for determining whether a given airline is operating on the right markets and on which markets its opportunities lie. Two groups of Business Analytics students developed such method with the aid of linear programming. They used several statistical techniques to support the choices they had to make in order to build their program. The students tested their method on data from a fictitious airline. Based on the outcome of the tests the students formulated a number of recommendations. The methods and the recommendations of both groups were well received by WorldACD.