Data Science in the Transportation Industry

Just about every industry has been impacted by revolution taking place in the science of data collection and analysis. One such industry that has been and will increasingly be impacted by data science is transportation. One example of this impact is in aviation. As fleets of aircraft modernize they are collecting exponentially more data though thousands of IoT sensors. All of these terabytes of data produced per flight is already starting to be used in a variety of ways.

Airlines’ abilities to optimize operations depends not only on the availability of data but also on how insights are derived from that data. Fuel use, crew placement, maintenance, flight routing are just some areas where data science is making a difference already. Maintenance forecasting systems have traditionally used historical trends to predict maintenance needs. As the numbers of sensors and connected parts on airplanes grows, airlines are becoming able to simulate airplane operations into the future using data from all of the relevant parts. These more accurate forecasts can reduce expenditures on parts and dramatically increase fleet availability. This type of model also leads to optimized maintenance supply and supply infrastructure. The appropriate amount of necessary parts will be at the required place when needed. These advances in predictive modeling reduce downtime, optimize resources, and control costs.

The impacts that data science is having on the airline industry is also occurring in other types of fleets including trucking, ocean shipping and military fleets. Thousands of airplanes, boats, and autos becoming more and more efficiently maintained and routed is wonderful news not just for our pocketbooks but also for our environment. The companies who lead in this predictive analytic revolution will be the competitive winner while those who are slow to adapt will be left behind.