Head:	Dr. A. Kouvelas / Dr. M. Makridis
Topic:	**Analyzing the impact of traffic accidents in Zurich**
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Registration:	www.ivt.ethz.ch/en/studies/downloads/assignments.html#registration

Description:

Although undesired, traffic accidents are misfortunes that happen frequently in urban road networks, causing great loss to the economy and threatening personal safety. For example, the city of Zurich alone has recorded more than 60,000 traffic accidents since 2011, with some of them being minor accidents while others being deadlier. These accidents can negatively influence the traffic network, possibly leading to a certain degree of congestion or even temporary lane closure, which decreases the serviceability of the vicinity of the accident.

A data analysis should be carried out to study what factors can potentially contribute to the negative influences of accidents on traffic conditions. For example, it is not hard to imagine that a more severe accident can usually take longer for the traffic police officer to resolve. Some other factors may include traffic load, speed limit, daytime of the accident, etc. Certain traffic parameters, such as speed and density, as well as traffic models like Macroscopic Fundamental Diagrams (MFD), may help with such analysis. Conversely, a study on the impact of traffic conditions on the severity of traffic accidents can also be an interesting direction of study.

By understanding the most influential factors, we may control the traffic lights and use other traffic management tools in a more optimized manner to tackle the negative impacts in case of traffic accidents taking place.

Remarks:	Individual work recommended
Credits:	8-11 ECTS for bachelor/project thesis
Recommended lectures:	103-0414-10L Verkehr GZ 103-0849-00L Multivariate Statistik und Machine Learning
Additional information:	Programming skills in Python are required Hand-on experience with ML can be a plus Interested students may directly contact linghang.sun@ivt.baug.ethz.ch