

Predicting the severity of an accident: Introduction

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12/10/2020

1 Introduction: Business problem

Before boarding a plane, a high school student has a premonition: the plane is going to crash as soon as it takes off. As the boarding proceeds, this gut feeling grows stronger so that he persuades his friends to stay in the airport waiting for the next flight. While he is being blamed for what seemed to be a panic attack, the plane crashes as it takes off. This is the beginning of the cult movie *Final destination* (2000) which, going beyond its sci-fi plot, introduces the topic of this report: is it possible to predict on scientific basis the severity of an accident ?



(a)



(b)



(c)

Figure 1: a) Traffic jam in Milan (Italy, [link a](#)), b) Crash involving a motorcycle in Milan (Italy, [link b](#)), c) Movie scene in *Final destination* (2000) where the main actor has a premonition of an accident and tries to persuade his friends to change their trip plans ([link c](#)).

1.1 Background

Traffic accidents are one of the major cause of mortality and disability and, according to World Health Organization, rank among the top 10 causes of deaths in the world (for details see WHO site). Traffic accidents results not only in mortality and disability but also in hindrance for public viability, since people take long to reach their destination, and for public healthcare, since people may be hurt in the accident. In a nutshell, accidents turn up to cause an expense increase to cope with injured people and traffic jam. Therefore, traffic accidents have a wide spread of economic impacts that should be addressed by the stakeholders.

1.2 Problem

Numerous factors may affect the severity of an accident, such as whether conditions, road layout, lighting conditions, vehicle speeding, drug/alcohol influence and so on. Understanding how these features affect the accident severity is not a problem that has a straightforward answer. The aim of this work is to predict the severity of an accident by such kind of features.

1.3 Interest

Understanding how the accident severity is related to traffic or drivers features is of utmost importance. If we predicted the severity of an accident, preventive measures could be taken for people safety controlling the accident severity and thus its economic consequences.