**Heilmeier Questions**

1. **What are you trying to do? Articulate your objectives using absolutely no jargon**. We are using traffic accident data sets in the Los Angeles area to predict accident hot spots. These hot spots will be used by civilians to create safe routes for driving and for first responders to identify areas needing active patrols.
2. **How is it done today; what are the limits of current practice?** There have been many studies predicting traffic accidents using regression and classification methods. Many different data types have been used as well. While some of these models have generated good predictions, none, in our research, have applied routing using the model or have been used for first responders.
3. **What's new in your approach? Why will it be successful?** Our approach is new as it can actively route users around accident hot spots. It will be successful because accident estimation models and routing algorithms have been studied but have not yet been combined.
4. **Who cares?** “According to WHO, each year 1.35 million people die and 20 to 50 million people sustain non-fatal injuries from traffic accidents” [W. H. Organization et al. Global status report on road safety 2018: Summary]. “In the US alone, traffic accidents cost $871 billion annually” [The economic and societal impact of motor vehicle crashes, 2010 (revised)]. These statistics alone show that traffic accidents are vastly important to the regular driver and government.
5. **If you're successful, what difference and impact will it make, and how do you measure them (e.g., via user studies, experiments, ground truth data, etc.)?** This tool could be used by first responders to identify areas that need early patrol, which could prevent death or as serious of injuries. It also can be used by the general public to follow more safe routes when driving. These could be measured by studies following implementation to see if serious injuries are reduced, in the first responder case, or if the number of accidents that users decrease, for the public case.
6. **What are the risks and payoffs?** A risk is that we do not encapsulate all necessary predictors and the model is a poor prediction. While many studies have generated models, for ours to be effective it needs to have a high prediction capability. The payoff is that injuries and accidents can be reduced.
7. **How much will it cost?** Beginning, it will not cost anything. With many free data sets from governments, we will have enough data to make an initial model. If niche data is needed, then there could be a cost to acquire it. The goal is to not have any cost associated to the project besides the time to complete it.
8. **How long will it take?** This will take the 2 months assigned to the CSE-6242 project.
9. **What are the midterm and final "exams" to check for success? How will progress be measured?** The midterm exam is to have a working model that can generate hot spots for traffic accidents with decent accuracy. The final exam is to have an implemented routing algorithm that finds the safest and fastest route for the user. Progress will be measured in weekly team meetings and progress reports.