Project name	Crowd Prediction & Mobility Management
Description	In Amsterdam, we are trying to move to a mobility management system that is based on data and predictive models of traffic. This should allow the city to implement countermeasures to prevent crowds and congestion, rather than to (ineffectively) react to it. What makes this problem so interesting is that it covers all modalities - that is, crowdedness on the roads, in parking garages, shared mobility and public transport, as well as bicycle paths and pedestrian areas. Available data sources include not only counts of cars and people from different sensors around the city (e.g. the Crowd Monitoring System Amsterdam, CMSA), but also information about the weather, holidays and school vacations, places, shopping areas, and events around the city, flights or cruise ships arriving in Amsterdam, social media, and many other sources. But are all of these sources and measurements correlated, and do they hold predictive power for one another? Can we calibrate the existing relative busyness levels to the numbers from the more scarce concrete sources in order to predict the exact numbers of cars or people? And what does it really mean if 100 people are predicted to be at a certain square at a certain time? Should a policymaker interpret this number as crowded or not? These are only a few of the many questions that you could help us answer. For more inspiration, you can look at some of the previous projects we have worked on. In the past, a student from UvA created a baseline model for simulating passenger flows based on the Transport Network Simulation package of TU Delft. A student from TU Delft dedicated his master thesis to researching the publicly available [redacted], analyzing which are the groups of people that choose for the ride-hailing service and why, as well as what this data can tell us about recurring and non-recurring congestions in the city. To prevent such congestion moments, we also investigated predicting traffic intensities during planned events in the vicinity of the Johan Cruyff Arena - a model that can be used to optimize the traffic light stages or redirect traffic. More recently, we worked on two projects which aimed at solving new challenges that we faced during the Covid-19 pandemic. One student dedicated his MSc Data Science thesis to comparing the performance of different models for predicting crowdedness before and after the start of the pandemic. Another student focused on short-term predictions of

	pedestrians - an approach that allows us to make short-term decisions such as temporal one-directional traffic or closure of parks and markets based on the predictions for next weekend.
Work environment	Within the City of Amsterdam, the student will work with experts from the Chief Technology Office, Mobilab, and the traffic department. Once a week all students gather for more in-depth technical support. What we offer: ● Freedom and responsibility ● Working in a team of experienced people ● Successful outcomes are directly implemented ● A monthly internship compensation
Expectations	The most important thing is to be eager to explore and learn together and step out of the comfort zone. The aim is to achieve results directly applicable and relevant to the municipality. (i.e. not merely an academic paper). In addition to the delivery of useful predictive models, relevant results also include byproducts of the whole data analysis/processing pipeline that could be turned into insightful reports.