

# Capstone Project:

## Walking Tour

### Introduction

#### Problem

Whether you are on vacation in a new city or exploring your own, it can be challenging to plan out your day's activities. There are so many places to go and so little time. Not to mention, driving and parking can be stressful, time consuming and expensive. Wouldn't it be nice if you could plug your preferences into an algorithm and have a custom list of places to stop? Even better, what if your stops circled back to where you started? That way you could leave your hotel or park your car in a convenient location and when you are done for the day, just walk a short distance back.

#### Solution

This project utilizes reinforcement learning to create a "walking tour" of an area based on user preferences. The user inputs their starting location, number of places they would like to visit, distance they are willing to travel between stops and venue categories they are interested in. The algorithm takes that information and uses Foursquare data to produce an ordered list of venues for the user. Each stop is within the distance the user is willing to travel from the previous stop and the last stop on the "tour" is within that distance of their starting location, creating a loop.

#### Target Audience

While the walking tour is limited, it provides a framework for a more comprehensive travel planning application. There are many web based services on the market today have revolutionized travel. These services handle everything from booking flights and accommodations ahead of time to hailing a ride in the destination city. However, there is a lack of services that help travelers plan the fine-grain details of their itinerary. Pulling from data that already exists in Foursquare and other locations, one could create an application that generates a travel itinerary for the user based on custom preferences. Such application would be of interest for travel agents and DIY travelers alike. The discussion section of this report outlines some ideas for adapting and enhancing the walking tour algorithm to create a more comprehensive travel planning algorithm.