CS355 Final Project - Proposal

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Digital Parkour

What is parkour, you may ask? Well, the word *parkour* is a French word “course.” More specifically, parkour refers to the mental and physical discipline of identifying and then following the shortest route from a given start point *A* to a given end point *B*. Parkour is a mental discipline in that it requires acute awareness of one’s environment, and the discernment to make quick but wise decisions that will help one to find the most efficient route. The route is not usually planned ahead of time, but rather determined on the fly. Parkour is a physical discipline as well, as greater athletic ability will allow one to take more efficient routes.

So that is parkour. But what on earth is digital parkour? Well, actually this is not a real term (as far as we know). Rather, it is our idea for an application of the shortest path algorithm. We intend to create an application that will allow a graph of a physical area to be created. There will be various identified points in this area. (The more points are identified, the more accurate our application will be.) All possible paths between these points will be assigned unidirectional *edges*, accompanied by *weights* which will specify how long that path will take (or how inefficient it is) for a traceur (one who practices parkour). Our application will then be able to show the most efficient route (with respect to time) from any start point *A* to any end point *B*. This will be our application in its most basic form.

If we are ambitious and want to expand on this concept, we may also choose to allow a user to enter in a factor called “athletic ability.” This could limit the availability edges based on the user’s ability in order to somewhat simulate real-life parkour. Users that cannot climb 20-foot brick walls might not be able to take the same path as users that can do this. We could take this concept even a step further by introducing a “risk factor” which would allow paths to not only contain *weights*, but *injury risks* which would vary based on the athletic ability of the user. Based on both the risk factor and the athletic ability entered by the user, the application would decide whether or not to direct the user along a potentially dangerous path.

A final improvement of our application would be to actually replicate a real-life physical map of a local area, such as the UNA campus (to a certain degree of accuracy). We could identify various nodes and determine the weights of possible paths between nodes, and use this to create a real-life application that could potentially be useful to local traceurs.