**Definitions**

**Pathfinding:**

Pathfinding is computing the shortest route between two points. This was conceptualized by a computer scientist in 1956, Edsger W. Dijkstraitte created a “shortest path first” algorithm and published it in 1959.

**A\*:**

A8 is a graph traversal and path search algorithm. It works by storing nodes and calculating the routes between them all, resulting in a “weighted-graph”. It can be seen as an extension of Dijkstra’s algorithm and was published by Peter hart, Nils Nilson and Betram Raphael in 1965.

**Context-free steering:**

Context-free steering is specific to each game and by design does not take “context” into account when making steering decisions but instead performs calculations when a steering decision must be made. This can be very expensive the more objects you have in the game that needs to make these decisions and can provide results at the expense of smoothness and realism.

**Context-sensitive steering:**

Context-sensitive steering tries to simplify the decision making process by representing the “context” of a decision numerically. The directions one can travel in, the desirable outcome and the danger are converted into a numerical value. This really simplifies the steering decision down into “go in the direction of the largest value” and really cuts down computational costs associated with steering algorithms. Direction can vary in complexity and will be specific to each game but will simply be a range of variables representing a given direction. The desirable outcome refers to what the autonomous body is trying to do such as chasing another entity or winning a race etc. Danger can be many things but in regards to steering it’s primarily obstacles.

**My aim:**

To investigate context-sensitive steering approaches and develop a hybrid AI which utilizes A\* and context-sensitive steering in unison and compare it to other steering solutions. The entity will swap between the two systems and use both to navigate to a point somewhere in the simulation.