**Summary Of Andrew Fray, Rory Driscoll and Reynolds work:**

*By Martin Farrell*

Craig W. Reynolds, is an artificial life and computer graphics expert, who created the Boids artificial life simulation in 1986. He also wrote a paper on “Steering behaviours for autonomous characters” in 1999 and laid the groundwork for Fray and Driscoll. You might say he’s the father of steering behaviours as we know them today. The paper he wrote in 99’ broke down how to make an AI seem more realistic into 3 main aspects: action selection, steering and locomotion. He came to this conclusion after working at different companies for a period of 12 years(1987-1999) and during this period he also worked on the movie TRON.

Andrew Fray sought to improve upon the established standards in autonomous steering and proposed “context sensitive steering” as a solution to the problem of more linear “action selection” that would result in poor decisions or game states such as the AI not moving at all or going somewhere it should not go, such as cutting corners on a track. Fray had worked on a formula 1 game previously and he arrived at this solution while working on it(codemasters F1). At his GDC talk in 2013 he illustrates why the linear decision making is okay for certain games but for racing games and some other games with a huge AI element it’s really important for the AI to make the right decisions. He also proposes a grid system representing “interest” and “danger” and how to map it to your game to ensure the AI steers the right way.

Rory Driscoll encountered a problem with Fray’s implementation in 2016: *“I found it quite difficult to tune the heuristic in such a way as to balance the danger and interest. For example, when moving to a patrol point very close to a wall, the danger of colliding with the wall would override the interest of patrol point and the entity would never arrive.”* His proposed solution was to calculate a danger “threshold” for a particular point so that the entity could eventually arrive. This meant that the entity was more tolerant to danger the closer it got to the patrol point.