An Evolutionary Approach to the Optimisation of Tyre Strategy in Motorsport

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ABSTRACT

In most forms of motorsport, tyre strategy is a crucial factor in race performance as the tyres are one of the single most significant performance variables during a race. Optimising the tyre strategy to be used in a race is not a computationally trivial task, even with a simple race simulation.

An evolutionary algorithm for evolving an optimal tyre strategy is presented and compared against a more conventional algorithm and the results of a manual optimisation. Based on the scalability demonstrated during, this evolutionary approach could potentially be successfully applied to a more complex, multi-objective strategy optimisation.

Figure 1. Graph comparing the scalability of the evolutionary algorithm against the exhaustive search algorithm.