

Honours project details

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- Title: Game theoretic analysis of Internet network problems
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Abstract

In a network, independent agents seek to minimise their own cost (for example, travel time) without regard to wider or societal impacts of their behaviour. Such greedy behaviour may lead to varying levels of inefficiency, as measured by the price of anarchy, which compares the cost of the Nash equilibrium with the optimal routing obtained if there were centralised control.

Multicast routing is a method of delivering information that has been requested by multiple recipients that removes the redundancy of sending the same information down the same path multiple times. A challenge is presented by the desire of network operators to charge users equitably for data through their networks.

This project aims to supplement existing considerations of multicast traffic, such as using marginal cost, with other models based on independent, greedy agents, with improvements with respect to equity, profit and overhead network traffic. The project will construct and analyse these models, and prove properties relating to these models.

References

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