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Qualification Sought:	BSc Computer Science (Artificial Intelligence) (G800)
Title of Project:	The Emergent Properties of Multi-Agent Systems
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Date:	March, 1999

ABSTRACT

In this project, we have designed and implemented a grid-world multi-agent simulation system in object-oriented C++. Simple reflex agents with internal state have been derived from a base class and have been used in experiments to graphically illustrate three fundamental categories of emergent phenomena:

1. Emergent Behaviour
2. Emergent Functionality
3. Emergent Structure

Emergent grouping, flocking, resource transport chains and path structures form the focus of our experimental work. We also illustrate how emergent path structures may be applied to solving some safety issues in industry, by simulating crowds of agents escaping from a building during a hypothetical emergency situation.

This project report is in accordance with Examination Regulation 6.5(a)(iii).