

**FROM ENGINEERING TO PROGRAMMING: SMART MULTI AGENT SYSTEM APPLICATIONS
USING ARL**

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ABSTRACT: Modern computing systems are generally based on embedded smart agents. They are introduced as a new trend of computing paradigm; in which we can define smart entities in software system or robotic machines. This modern trend of technology calls for new approaches in both software engineering and programming techniques. Unlike Object Oriented programming languages, Agent oriented programming languages and agent oriented engineering are not stable and are not well defined, on the contrary, object orientation is well defined and consistent. From the fact that, agent oriented programming is an implementation of agent oriented engineering; this article follows this sequence and it tackles the application view over agent oriented software system. (Agent Role Locking) ARL theory is used to design and implement agents in software system, on the other hand *Java threads* are used to implement agents. The main aim is to show innovative incorporation relationship between engineering methodologies and programming application in Smart Agent Orientated Technology.

Keywords: *Agent Role Locking Theory (ARL), Java Threads, Agent class, Role Class, Agent-Oriented Programming AOP*