

Information required for the SDN registration

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Thesis Title	ENGINEERING SELF-AWARENESS WITH KNOWLEDGE MANAGEMENT IN DYNAMIC SYSTEMS: A CASE FOR VOLUNTEER COMPUTING
Abstract	<p>The complexity of the modern dynamic computing systems has motivated software engineering researchers to explore new sources of inspiration for equipping such systems with autonomic behaviours. Self-awareness has recently gained considerable attention as a prominent property for enriching the self-adaptation capabilities in systems operating in dynamic, heterogeneous and open environments. This thesis investigates the role of knowledge and its dynamic management in realising various levels of self-awareness for enabling self-adaptivity with different capabilities and strengths. The thesis develops a novel multi-level dynamic knowledge management approach for managing and representing the evolving knowledge. The approach is able to acquire 'richer' knowledge about the system's internal state and its environment in addition to managing the trade-offs arising from the adaptation conflicting goals.</p> <p>The thesis draws on a case from the volunteer computing, as an environment characterised by openness, heterogeneity, dynamism, and unpredictability to develop and evaluate the approach. This thesis takes an experimental approach to evaluate the effectiveness of the of the dynamic knowledge management approach. The results show the added value of the approach to the self-adaptivity of the system compared to classic self-adaptation capabilities.</p>