Department of Computer Science and Software Engineering

Master Thesis Defense

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ABSTRACT

Managing the evolution of complex and large software systems involves many different types of resources and knowledge such as software artefacts, user expertise, tools and techniques, etc. Variations and interrelationships among these types of resources and knowledge create well-known challenges for maintainers. Current research mainly focuses on establishing comprehension model, and developing tools to tackle a specific aspect of maintenance problems. Little research has been conducted to study how resources and knowledge work collaboratively together to provide guidance to maintainers to complete specific maintenance tasks in a given context. In this research, we introduce a customizable maintenance process model, which extends an existing IEEE standard process model, to allow visually link various resources (e.g. tools, artefacts, maintainers etc.) and knowledge to relevant maintenance process elements. A visual metaphor has been created to graphically represent the process model. Finally, a tool environment has been developed to provide utilities for maintainers to create, customize and apply our maintenance process to provide guidance for maintainers for their maintenance tasks.