

Master Thesis Defense

REVISED

Change of Date and Room

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Title:	A Platform-Independent Aspect-Oriented Model and Patterns to Support Model Transformations
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ABSTRACT

Model Driven Architecture (MDA) separates application logic from specific implementation technology to improve the reusability, portability and maintainability of the software system. However, current software system also need to deal with other important concerns that are called crosscutting concerns that explicitly addressed by Aspect-Oriented Programming (AOP).

In this dissertation, we propose a model-driven approach to assess the benefits of AOP for MDA in order to provide increased modularity and to support related quality attributes. Even though research has been conducted toward modeling crosscutting concerns, these approaches found to be either language dependent or provide no support for aspectual behavior. This work has two contributions. First, we complement current works by proposing an extension to the UML metamodel to explicitly capture crosscutting concerns. This UML extension is independent from any programming language and abstracted away from platform specific details. An instantiation of the newly created extension can be represented in standard XMI format, which enables current CASE tools to read and to visualize the instance models in UML. The second contribution is to provide well-defined and automated model transformation to work with different models at various levels of abstraction and preserve their consistency. The language-independent aspectual description of the proposed UML extension can support model transformations vital to software development and maintenance, such as forward engineering, reverse engineering, and reengineering.