

# Automated Conformance Testing of Attribute-Based Access Control and Obligation Policies

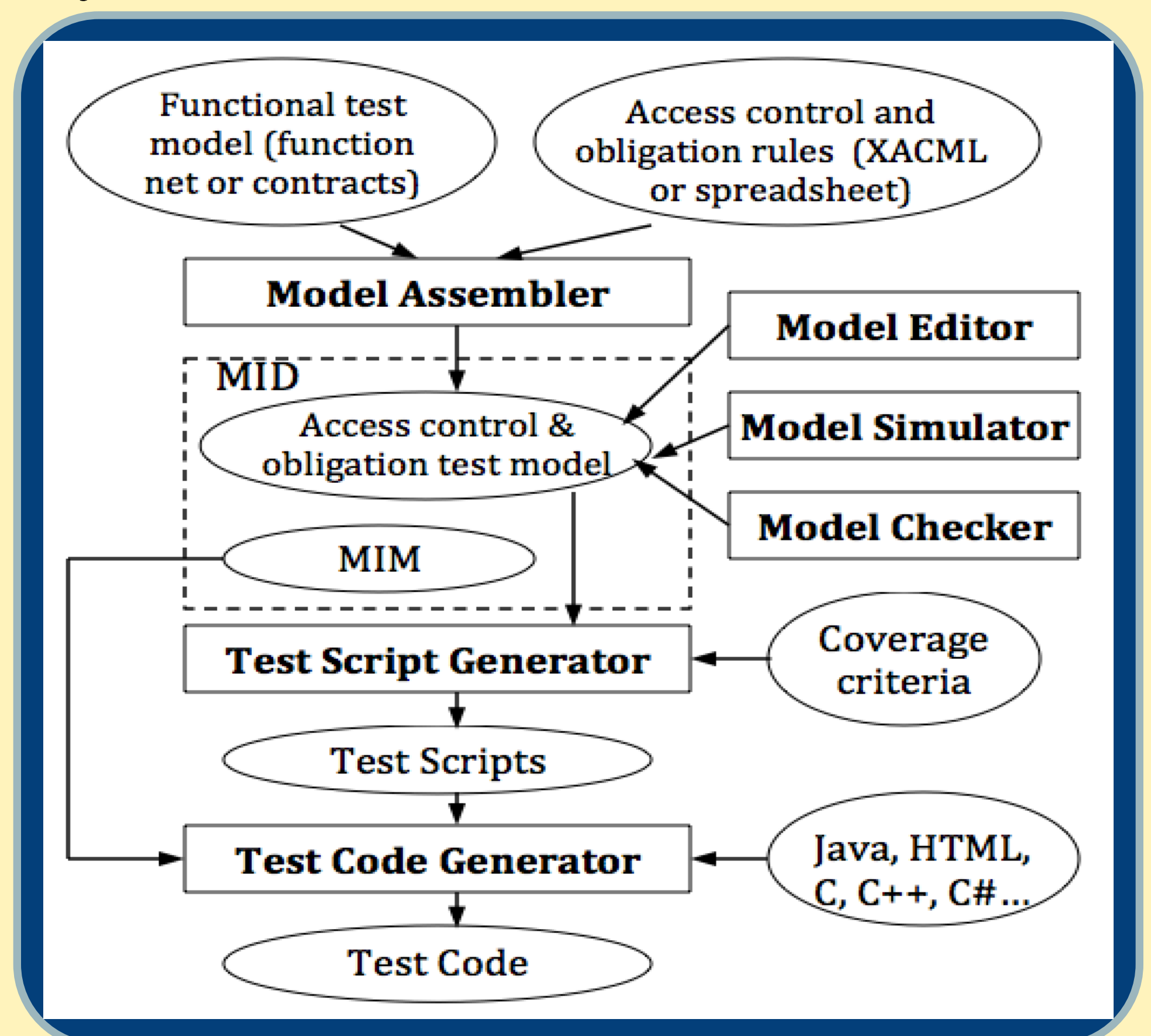
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## Background and Objective

As a new generation of access control techniques, Attribute-Based Access Control (ABAC) makes authorization decisions based on attributes of users, resources, environments, and actions. It provides fine granularity, high flexibility, and rich semantics.

Obligation policies are also important for assuring system accountability and privacy. An obligatory ABAC policy grants access with strings attached, i.e., obligations or behavioral constraints. However, a flawed system implementation may result in policy violations such as unfulfilled obligations and unauthorized accesses. It is important to reveal potential discrepancy between the policy specification and the actual system implementation.

The objective of this project is to develop an open source tool for model-based testing of attribute-based access control and obligation policies.



## Approach

- Build test models automatically by integrating attribute-based access control and obligation rules with functional test models.
- Automatically generate test cases from the test models.
- Automatically transform model-level test cases into executable test code in a chosen target environment. The test code can then be executed with the system under test to exercise the access control and obligation policies.

## Progress

- Developed the method for modeling test requirements of ABAC and obligation policies.
- Developed the algorithm for model-based generation of ABAC and obligation tests.
- Developed the algorithms for test code generation.

## Progress

- Developed an open source project (GPMS) as a showcase for using XACML to specify ABAC and obligation policies. GPMS is a web-based application for grant proposal workflow management at academic institutions.

## Ongoing Work

- Applying the tool to automated testing of ABAC and obligation policies GPMS.

Interested in meeting the PIs? Attach post-it note below!

