Testing Cyber-Physical Systems under Uncertainty

Shaukat Ali

Simula Research Laboratory, Norway, January 30, 2017

shaukat@simula.no

Project facts:

Total cost: EUR 3 713 233,75

EU contribution: EUR 3 713 233,75

Coordinator: Oslo Medtech, Norway

Topic(s): ICT-01-2014 - Smart Cyber-Physical Systems

Funding scheme: RIA - Research and Innovation action

Overall project objective:

Improving CPS dependability via systematic and automated testing of Uncertainty in CPS

The consortium

[simula . research laboratory]
- by thinking constantly about it

Fraunhofer FOKUS

TU WIEN

ULMA Handling Systems

IK4 IKERLAN Research Alliance

future position | 60°40'17" North 17°06'29" East 213.141.90.204

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easy global market

NORDIC MEDTEST

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Results and methods

Key expected results

- Understanding Uncertainty (U-Taxonomy)
- Modeling Framework
  - Extensible and Configurable
- Testing Framework
  - Extensible and Configurable
- Tools implementing Taxonomy and Frameworks
- Standards (Crosscutting)

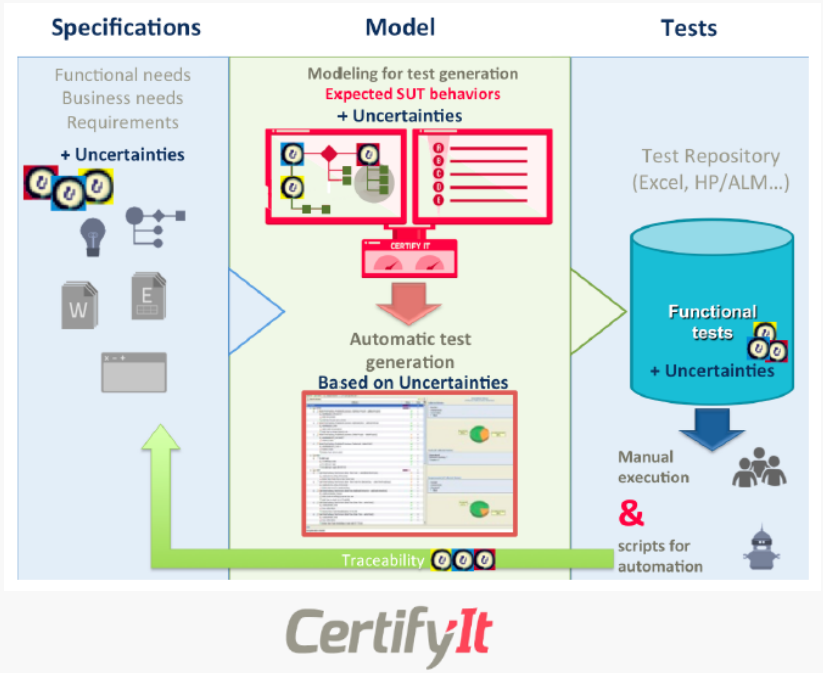
Model-Based Testing

- Abstraction
- Managing Complexity
- Automation
- Systematic

Search-Based Testing

- Optimization
- Smart Mechanisms
- Discovering unknown uncertainties
- Genetic Algorithms

Two Tool Chains



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Current Status of Results

- Uncertainty Modeling Framework: UML Uncertainty Profile, Model Libraries, and Guidelines
- Uncertainty Testing Framework: Test Strategies with uncertainty using Multi-Objective Search
- Standardization: UML Testing Profile V.2, Uncertainty Modeling (New Standard), SysML V.2
  - Webinar on Uncertainty Modeling Standard: https://www.brighttalk.com/webcast/12231/237665?utm_source=The+Object+Management+Group&utm_medium=brighttalk&utm_campaign=237665
  - 215 Registered, 137 Live viewings, 123 Downloads
- Exploitation: 13 Potential Sources of Revenues (Products & Services)

Thank you for your attention!

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