



2nd Research Roadmap Paper
***Software Engineering for
Self-Adaptive Systems***

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Self-Adaptive Systems***

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Dagstuhl Seminar 10431 *Software Engineering for Self-Adaptive* *Systems*

One of the outcomes from the discussions

- ◆ roadmap research paper
 - ◆ summarize the state-of-the-art and identify research challenges when developing, deploying, managing and evolving self-adaptive software systems
- ◆ the exercise had no intentions of being exhaustive
 - ◆ focus on four topics that were identified to be essential from the software engineering perspective
 - ◆ for each topic present an overview, suggest future directions, and focus on selected challenges



1st Research Roadmap Paper (2009)

Four topics and their key research challenges

- ◆ modeling
 - ◆ define models that can represent a wide range of system properties
- ◆ requirements
 - ◆ define new languages capable of capturing uncertainty at the abstract level
- ◆ engineering
 - ◆ make the role of feedback control loop more explicit
- ◆ assurances
 - ◆ supplement traditional methods applied at requirements and design stages of development with run-time assurances



2nd Research Roadmap Paper (2011)

Four topics and their theses

- ◆ design space for adaptive solutions
 - ◆ the need to define what is the design space and decisions that should be addressed
- ◆ processes
 - ◆ the need to define innovative generic processes
- ◆ from centralized to decentralized control
 - ◆ the need to define a systematic engineering approach for designing centralized or decentralized control schemes
- ◆ practical run-time verification and validation
 - ◆ the need to investigate V & V methods and techniques for the provision of confidence and certifiable trust



2nd Research Roadmap Paper (2011)

- ◆ it can be obtained from
 - ◆ <http://www.self-adaptive.org/dagstuhl-seminar/roadmap-paper-10431-draft/>
 - ◆ link from SEAMS 2011 online program
- ◆ feedback can be provided at symposium
 - ◆ one of the co-organizers
 - ◆ Hausi, Holger, Mary and Rogério
 - ◆ respective leaders for each part
 - ◆ Marin, Jesper, Danny and Norha and Gabriel
- ◆ feedback via e-mail, details on the website



Questions & Clarifications

