

I. Research Overview and Outcome

Problem Statement

- Implement a testable adaptation logic using the existing testable adaptive system simulator framework
- Research about implementing adaptation logics that take history into consideration to improve the decisions done in the future

Reasoning Framework

Composition

- **Online Validator** – validates different configurations and procedures, part of changes, etc during runtime. i.e. it is always working
- **Change Validator** – verifies that the product is safe. If needed it repairs the product. If changes are too heavy then it returns to the adaptation logic.

Behavior

- When the online validator detects an empirical constraint adds it to the DSPL model
- Restriction patterns should be logged as a response for a series of values of an environmental property

Case Study Implementation

Tasks

- Log every error / mistake in the development process
- Log the effort you put in the development of the adaptation logic
- The adaptation logic (**reasoning engine**) must comprise memory

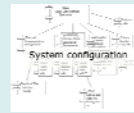
Outcome

- Extracted the adaptation logic rules from the adaptation requirements
- The adaptation logic implemented uses Ponder 2 and its policy evaluation engine to execute the required adaptive change.

Background

Dynamic Software product line (SPL)

System variability



= **System variant**

- The software product lines are described as a **feature diagram**
- A **system variant** is an instance of the feature diagram as a result of some environmental change

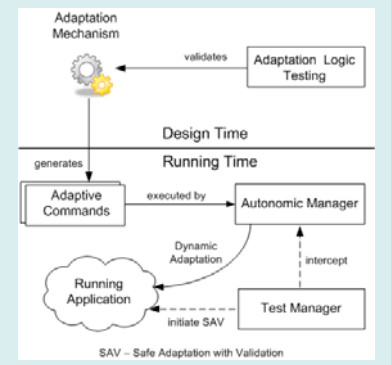
Validation

- The framework performs validation at three levels: requirements, design, and runtime



Research Approach

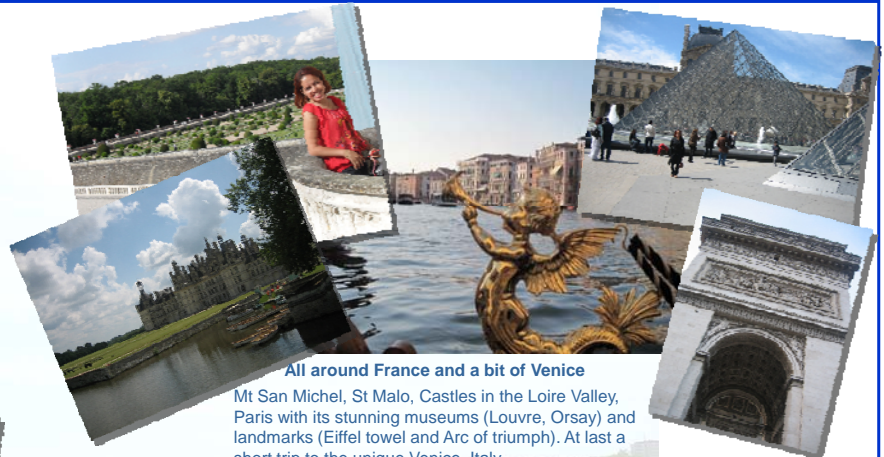
- The approach for testing autonomic systems at **FIU** complements the approach followed by **INRIA**.
- **STRG** at FIU focuses in testing the adaptation of the running application.
- **INRIA** labs focuses in validating the adaptation logic that would generate the adaptation scripts to be executed.
- More collaboration could be done in providing a comprehensive framework to merge both approaches.



II. International Experience



Work at INRIA labs
International Students and our workstations



All around France and a bit of Venice

Mt San Michel, St Malo, Castles in the Loire Valley, Paris with its stunning museums (Louvre, Orsay) and landmarks (Eiffel tower and Arc of triumph). At last a short trip to the unique Venice, Italy



The three of us.... then there were five

Yali, Andrew and me always together. After a few weeks two more students (Minhauzer and Priyank) joined us in the France discovery

“PIRE gave me a unique taste of France”

I grew professionally from this PIRE experience. It helped me identify interesting new areas of research. It also exposed me to a different environment and style of performing collaborative research. Personally it improved my interpersonal skills and gave me an appreciation of interacting with a culturally diverse group of individuals.



A quick hop to Morocco

III. Acknowledgement

The material presented in this poster is based upon the work supported by the National Science Foundation under Grant No. OISE-0730065 and the Department of Education under Grant No. P200A070543. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the authors and do not necessarily reflect the views of the National Science Foundation or US Department of Education.