Università degli Studi di Trento
Facoltà di Scienze Matematiche, Fisiche e Naturali
Dipartimento di Ingegneria e Scienza dell'Informazione

Life after the PhD

(or "what are you doing now that it's over?")

Lucretius Weekly Seminar Presentation @ DISI/Unitn

Vítor E. Silva Souza
vitorsouza@disi.unitn.it

License to use, adapt and distribute

This material is available for any kind of use and can be derived and/or redistributed, as long as it uses an equivalent license and attributes credit to original authors.

Attribution-Share Alike 3.0 Unported

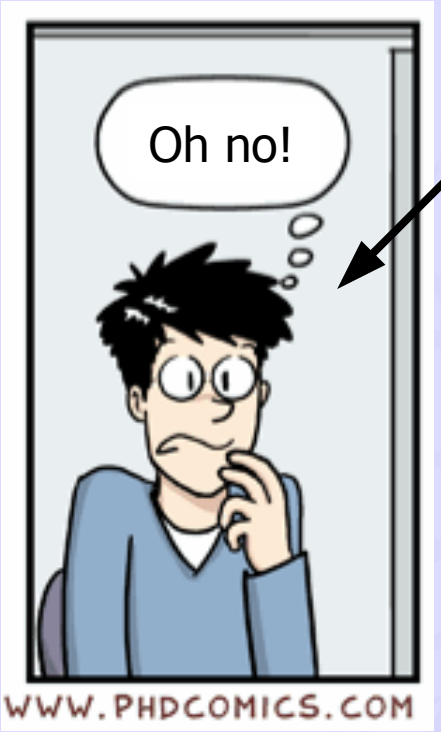
http://creativecommons.org/licenses/by-sa/3.0/

You are free to copy, distribute, transmit and adapt this work under the following conditions: (a) You must attribute the work in the manner specified by the author or licensor (but not in any way that suggests that they endorse you or your use of the work); (b) If you alter, transform, or build upon this work, you may distribute the resulting work only under the same, similar or a compatible license.

Is it over?

- It's never over, there's always future work...
- Future work that has become present:
  - Experiments with the ATM software;
  - The Zanshin framework and the Unagi CASE tool;
  - Moving to architecture / model co-evolution;
  - Requirements-based vs. architecture-based adaptation;
  - Adaptation and law;
  - Anything else?

Disclaimer



PhD student thinking I'm going to present his work and he'll have nothing for his seminar.

Everyone else, thinking this many topics will take forever...

Don't worry, it's only an overview...

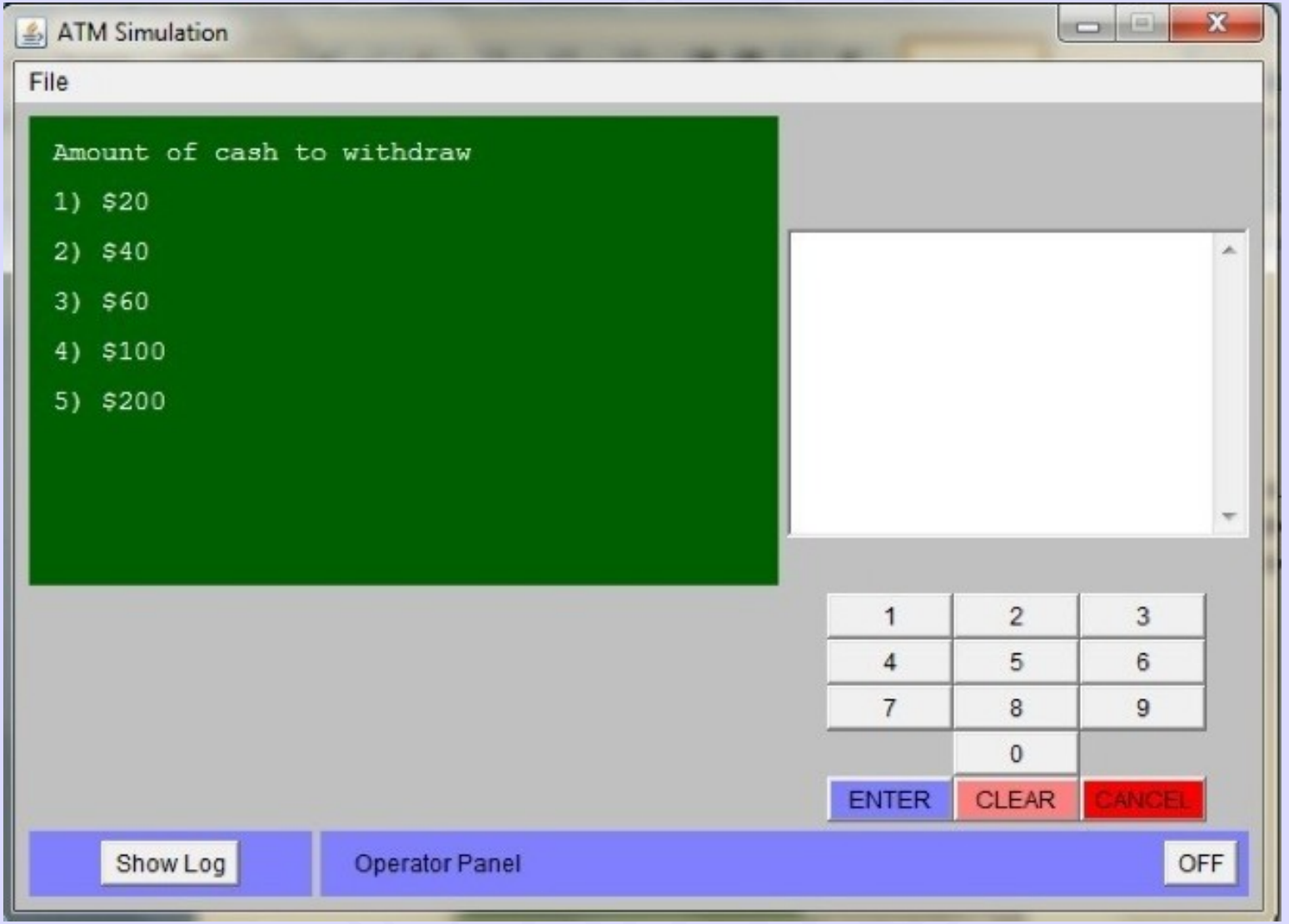
(But being me, it probably will take a long time!)

The ATM experiments

- Objective:
  - Experiment the Zanshin approach and framework using a real software;
- Methodology:
  - Existing implementation and goal models;
  - Added AwReqs, etc. to model;
  - Instrument implementation to use Zanshin.

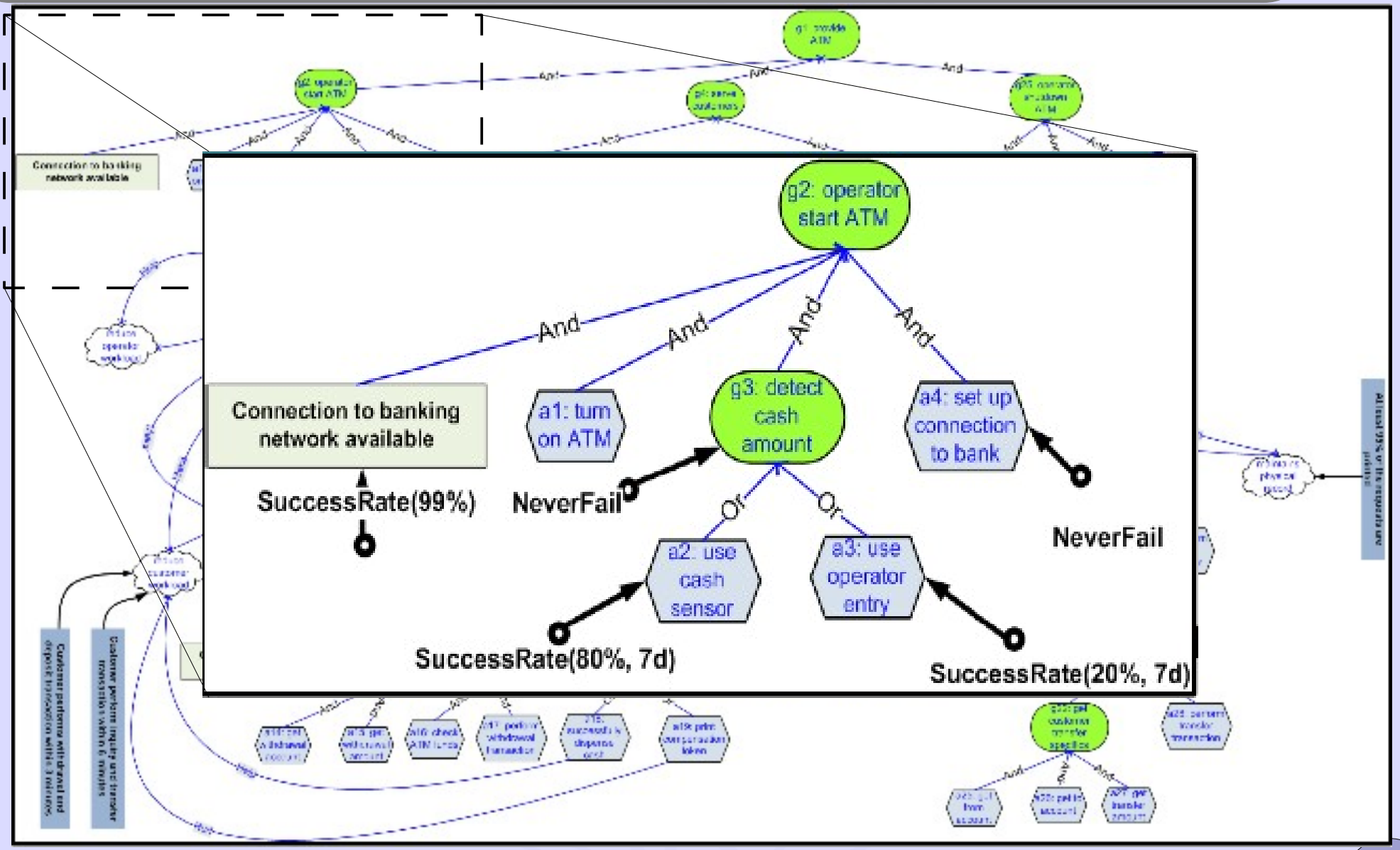
Genci Tallabaci, former masters student, currently programmer.

The ATM experiments



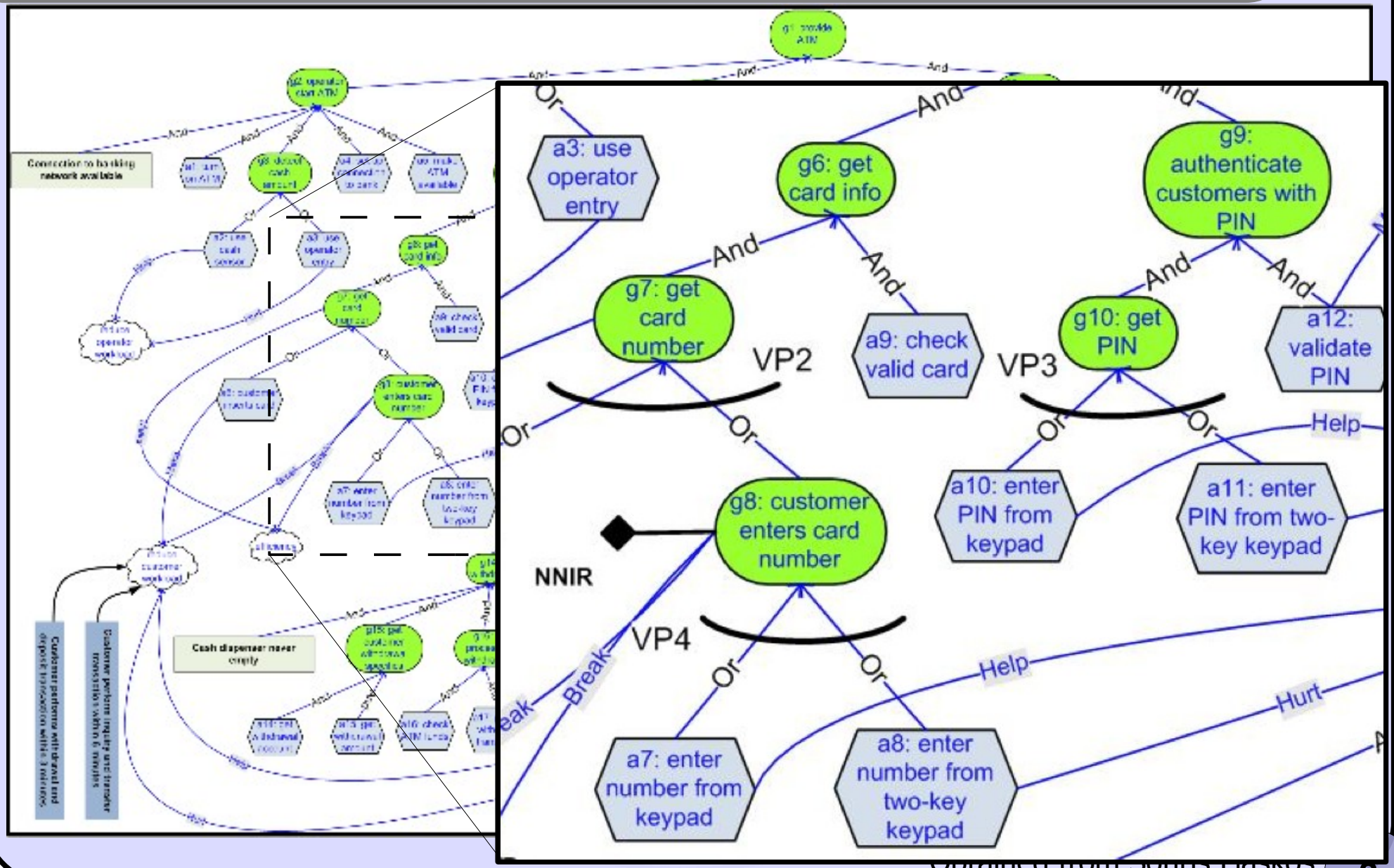
http://www.math-cs.gordon.edu/courses/cs211/ATMExample/

The ATM experiments



Obtained from Sotiris Liaskos

The ATM experiments



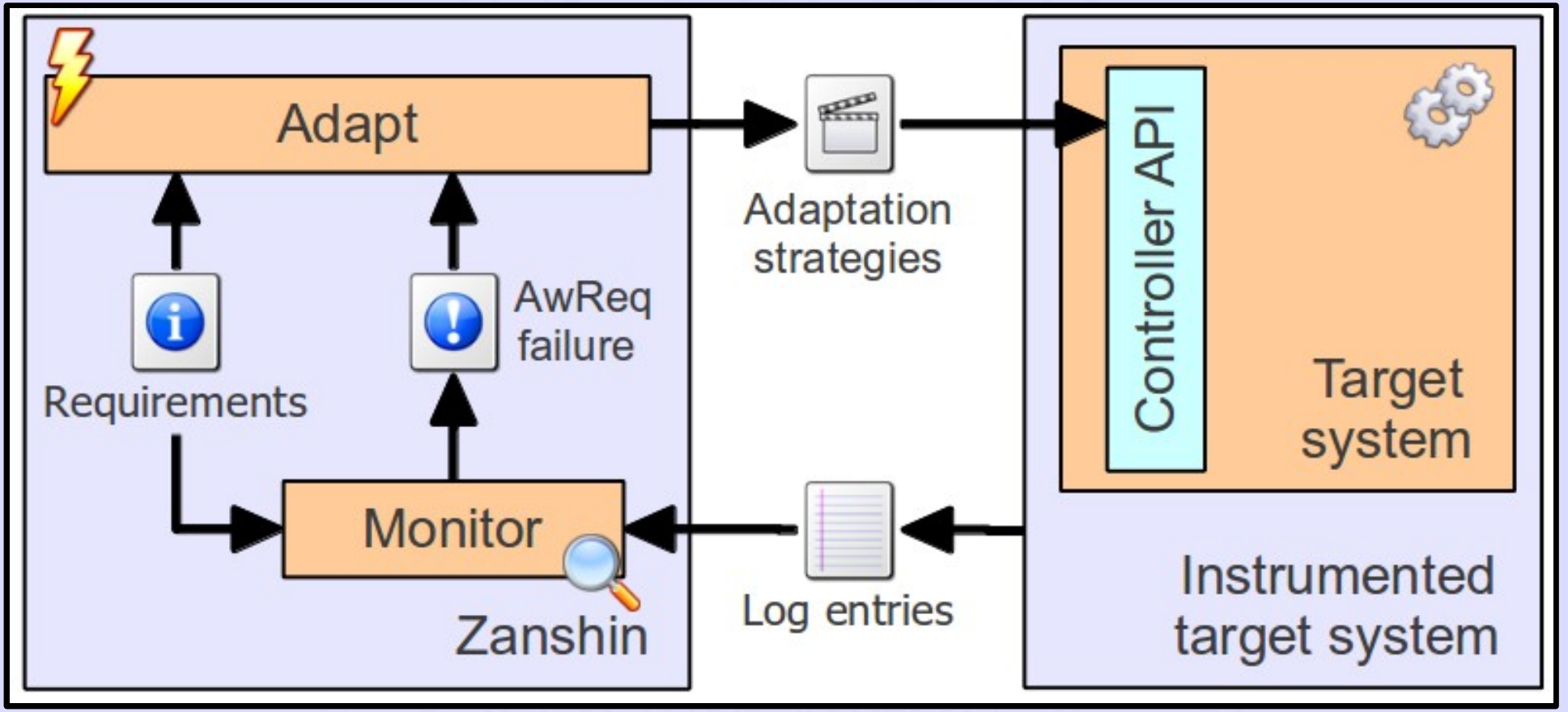
Obtained from Sotiris Liaskos

The ATM experiments

- To-do list:
  - Use aspects to instrument the ATM;
  - Provide ATM ↔ Zanshin communication*;
  - Experiment a few adaptation scenarios;
  - Write an experience report (CAiSE or SEAMS).

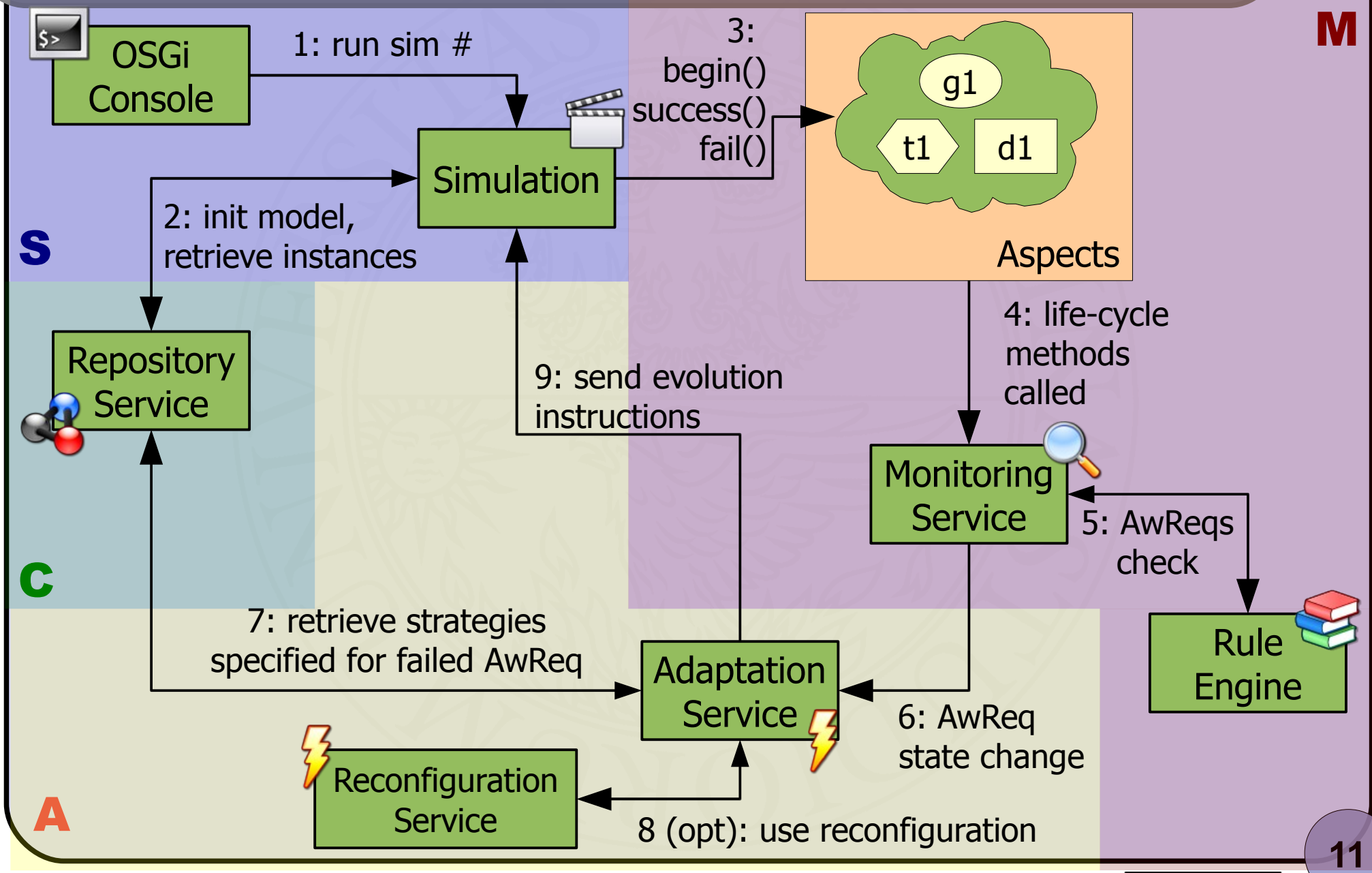
* requires changes in Zanshin...

The Zanshin Framework



残心

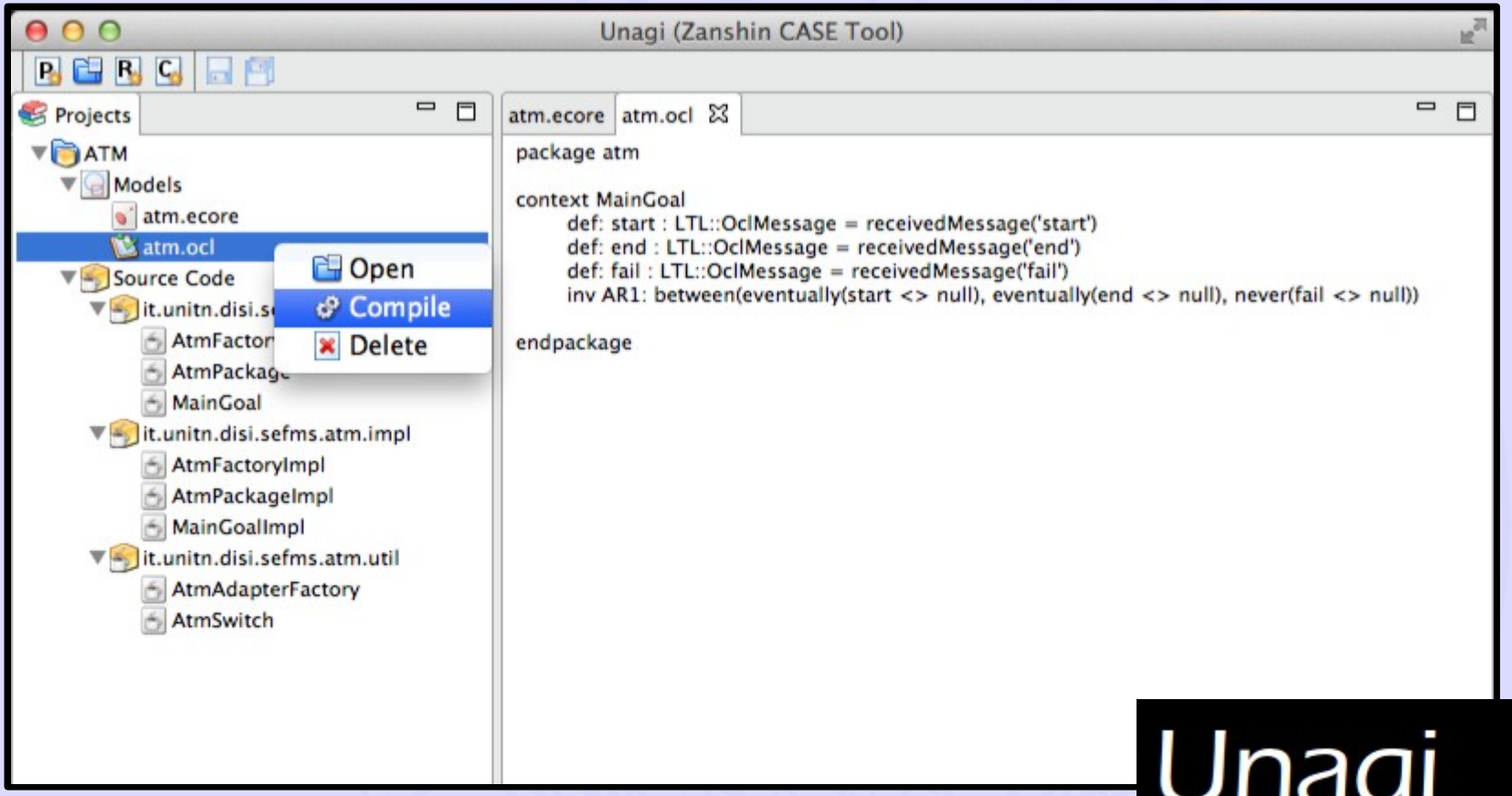
The Zanshin Framework



The Zanshin Framework

- To-do list:
  - Integrate Drools into the Monitoring Service;
  - Implement a proper controller instead of simulations (needed for ATM experiment);
  - More experiments, with different AwReqs and adaptation strategies.

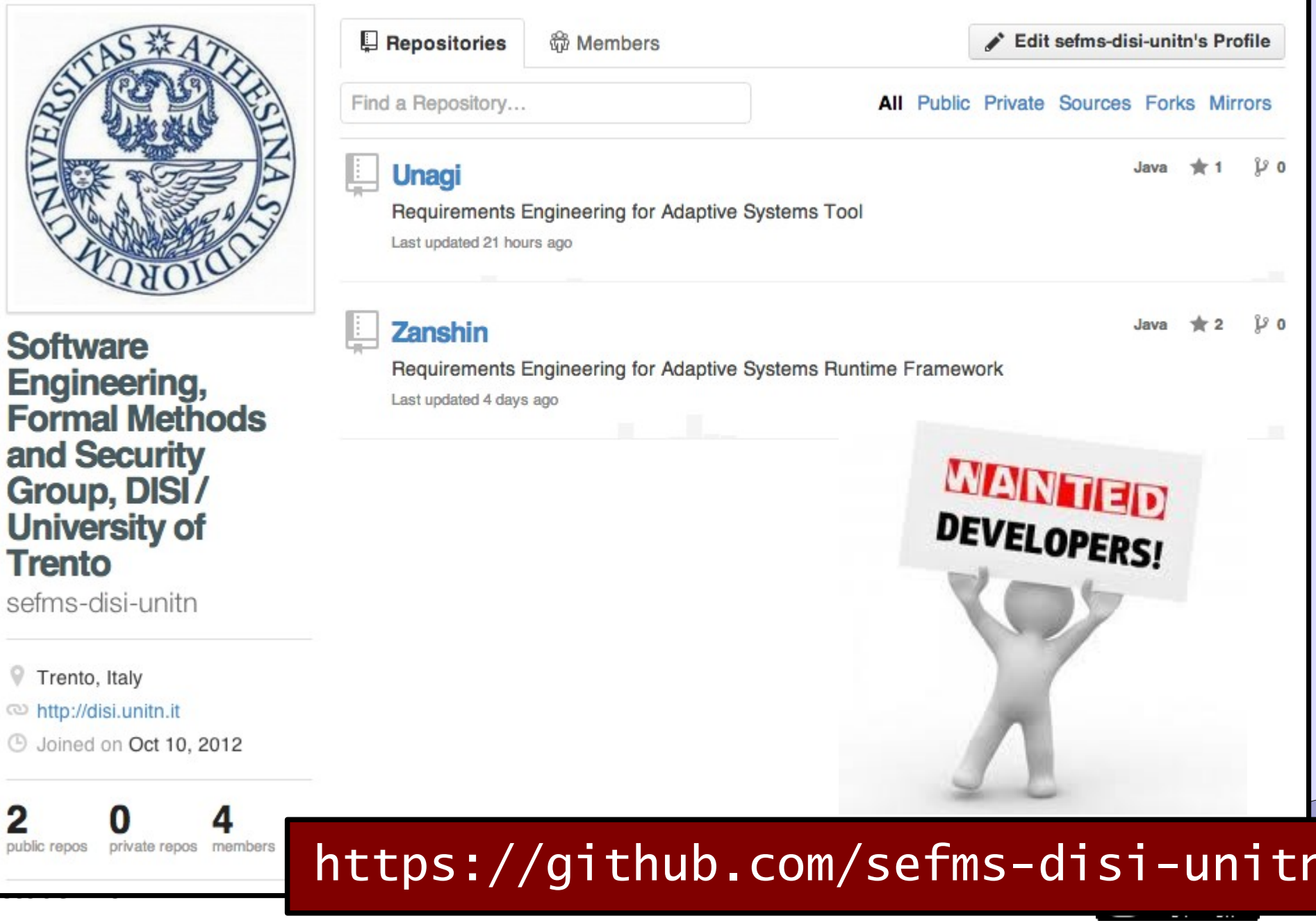
Unagi CASE Tool



Unagi CASE Tool

- To-do list:
  - Integrate EEAT's OCL_{TM} compiler;
  - Start Zanshin from within Unagi;
  - Develop and run Zanshin simulations;
  - Release a production-quality tool (I have a dream...).

Source code available



Moving to architecture

- Objective:
  - Take Zanshin requirements models to architecture design;
- Methodology:
  - Decide a suitable modeling notation for architecture;
  - Propose methodology to go from our goals to architecture;
  - Generate skeleton of adaptive application from models.

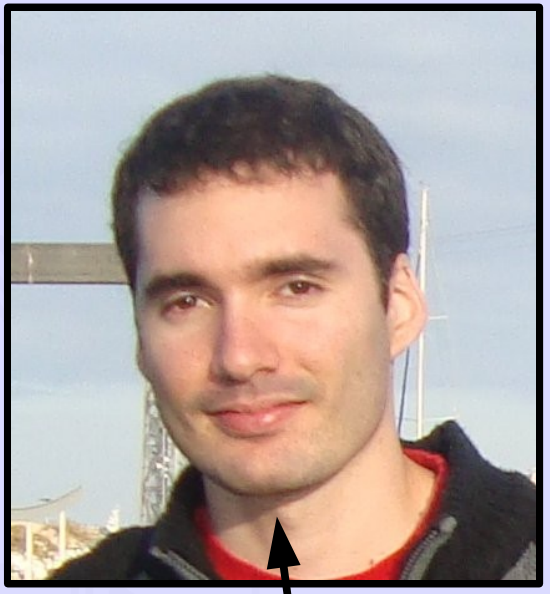
Konstantinos Angelopoulos, a.k.a. "Kostas". PhD student, desperate with his qualifying.

Moving to architecture

- Questions:
  - What architectural modeling notation to use?
    - Feature models? ACME? Darwin? BPMN? …
  - Can we keep using goal models?
  - Is there a baseline we should follow?
    - Kramer & Magee? Yu et al.? xADL/hADL? STREAM? …
  - Could we apply CVL to one of these proposals?
  - How to model actor variability?
- Target: REFSQ? CAiSE? SEAMS? RE?

Co-evolution of models

- Objective:
  - Evolve architecture models when requirements change and vice-versa;
  - Structural aspects covered, now considering behavioral aspects.
- Methodology:
  - Study behavioral evolution of models of adaptive systems;
  - Use Zanshin as notation.



João (just say "jew-own" really fast) Henrique Pimentel, Brazilian PhD student, waiting for the winter.

Co-evolution of models

- Questions:
  - Which architectural changes may impact the requirements?
  - How software adaptation changes the software behavior?
  - How to maintain the requirements-architecture links as the system evolves?

Requirements vs. architecture

- Objective:
  - Find out how Zanshin compares to architectural adaptation proposals.
- Methodology:
  - Start from Kostas' "Software Evolution" course report (Zanshin model of ZNN.com);
  - Run comparative experiments;
  - Write experience report.

You know Kostas, right?

SEAMS?

Adaptation and law

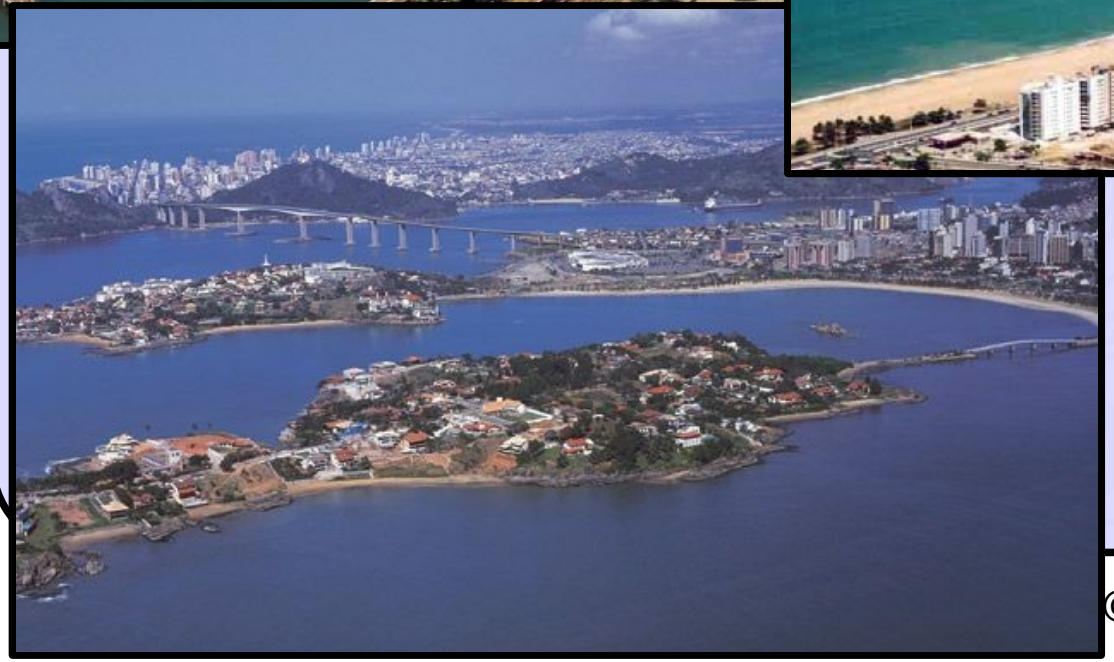
- Objective:
  - Investigate the role of law models (Nómos) in the design of adaptive systems (Zanshin).
- Methodology:
  - Start from Silvia's "Software Evolution" course report (Law AwReqs == LawReqs!);
  - Find examples in which Nómos models guide the construction of Zanshin models.

Silvia Ingolfo, PhD student, re-seminar admin, or simply "the girl who works with the law".

Join the awareness movement...

... and see how deep the rabbit hole goes!

You might get the chance to visit me...



... in Vitória (ES), Brazil!

(with the excuse of doing collaborative research!)

Thank You! Questions?

Acknowledgment:

My current research work is funded by the ERC advanced grant 267856 "Lucretius: Foundations for Software Evolution", unfolding during the period of April 2011 - March 2016.

http://www.lucretius.eu

Contact: vitorsouza@disi.unitn.it :: http://disi.unitn.it/~vitorsouza