Contact Profile (1/2)

- **Patrizia Asirelli, Maurice ter Beek, and Stefania Gnesi @ ISTI-CNR, Pisa, Italy.**
- **Significant experience in developing techniques and tools for the formal specification and verification, through model checking, of distributed and concurrent systems. Recent focus on developing formal methods and tools (in particular suitable logics) for SPLE.**

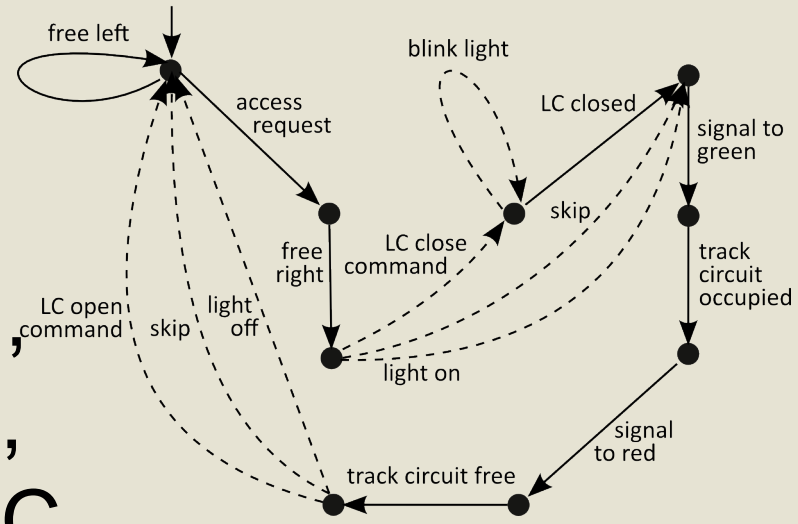
Contact Profile (2)

- **Objectives / Looking for**
  - We look for feedback on our technique's applicability to current industrial problems.
  - We would like to meet PL engineers from industrial domains which use model-based development of safety-critical systems.
  - Our participation is a success if we indeed obtain useful feedback on our technique's applicability to current industrial problems.

Asirelli, ter Beek, Gnesi @ ISTI-CNR

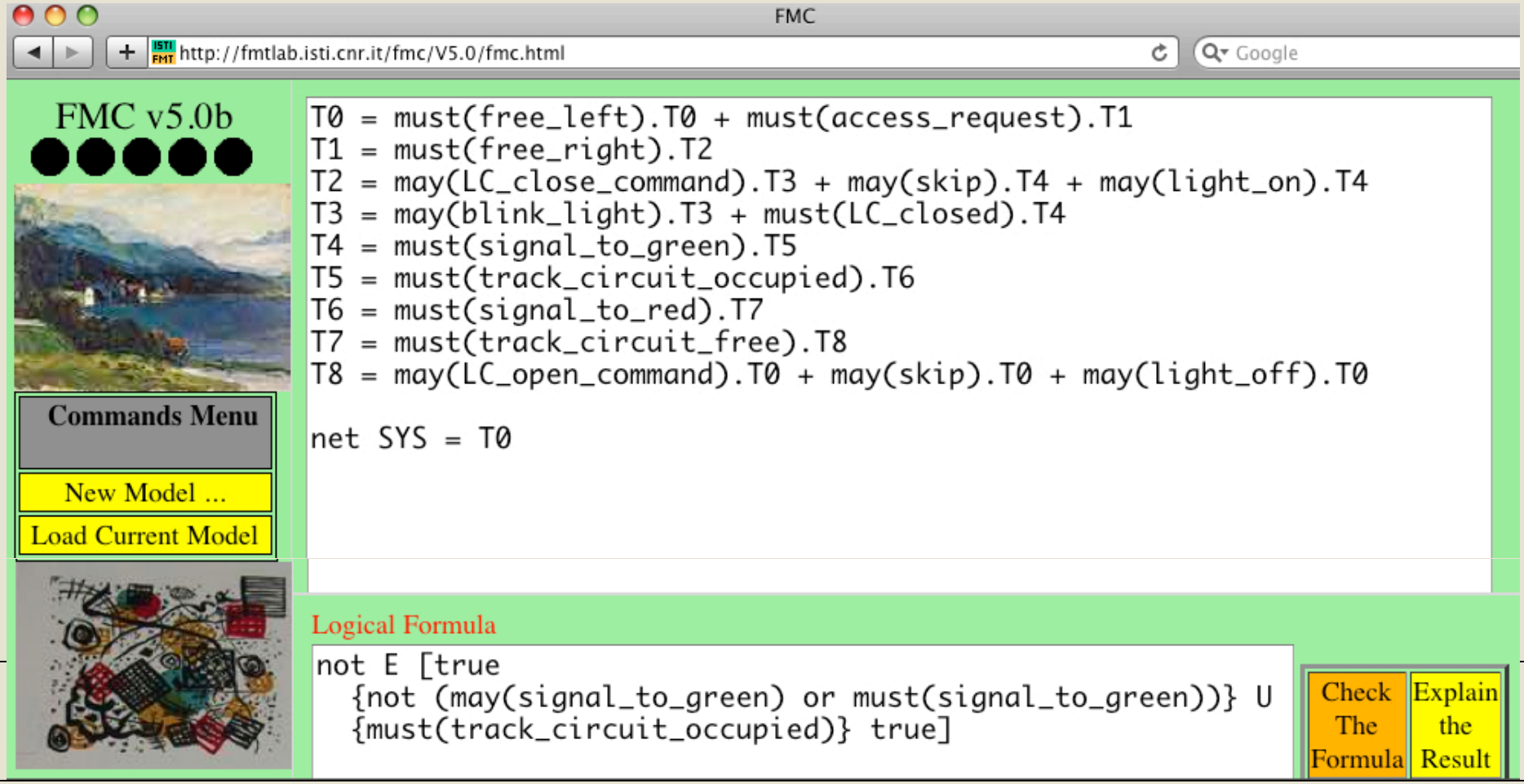
The Problem

- Validate by model-checking that variability in a PL does not violate desired properties: allow to formally prove that when a (safety) property holds for a PL, it holds for its products.
- Train section controller: *optional* Level Crossing, *alternative* with barriers, *optional* light *requires* LC



Current Solution

Model: MTS/CCS; Logic: vaCTL; Tool: FMC/VMC



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Why is it interesting?

We propose a formal framework: vaCTL logic and its natural interpretation structure (MTSs). Product derivation is defined in the framework. Logic formulae are used for constraints as well as properties, over families and products alike.

MTSs not to be used directly by PL engineers: it is the underlying semantic model. In practice, behavioral descriptions in high-level formalisms used in model-based development (e.g. UML).

vaCTL hidden from PL engineers by providing template formulae (i.e. temporal logic patterns).

Potential Collaborations

Maybe our experience in managing variability can help realizing and/or evaluating Complex Changes in Variability Models.

(We would also have liked to see whether our framework can be applied to the NASA Goddard Space Flight Center's Core Flight System SPL.)