

# The GEMOC Studio

Breathing Life into your Modeling Languages

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🌐 http://gemoc.org/studio



## Studio for Language Engineer Experts

"Integrated frameworks and protocols providing innovative Software Language Engineering tools and methods"

### Context:

Heterogeneous modeling of complex software intensive systems

### Why the GEMOC Studio:

- Extensible framework to support new approaches through well defined interfaces and protocols: Execution engines, editors, tools (execution space exploration, model testing, runtime monitoring...), frontends and backends
- Community with active members from academia and industry

### Research questions:

- Modular language design and implementation
- Language interfaces (structural and behavioral)
- Integration of dedicated meta-languages for specific language concerns (e.g., concurrency)
- Protocols for executable modeling (e.g., debugging, animation, run-time monitoring)
- Language composition operators (e.g., reuse/variability management, behavioral coordination)

### Expected outcome:

- Scientific and technological foundations on modeling language design, implementation and coordination
- Innovative frameworks and protocols for Software Language Engineering
- A cutting edge language workbench

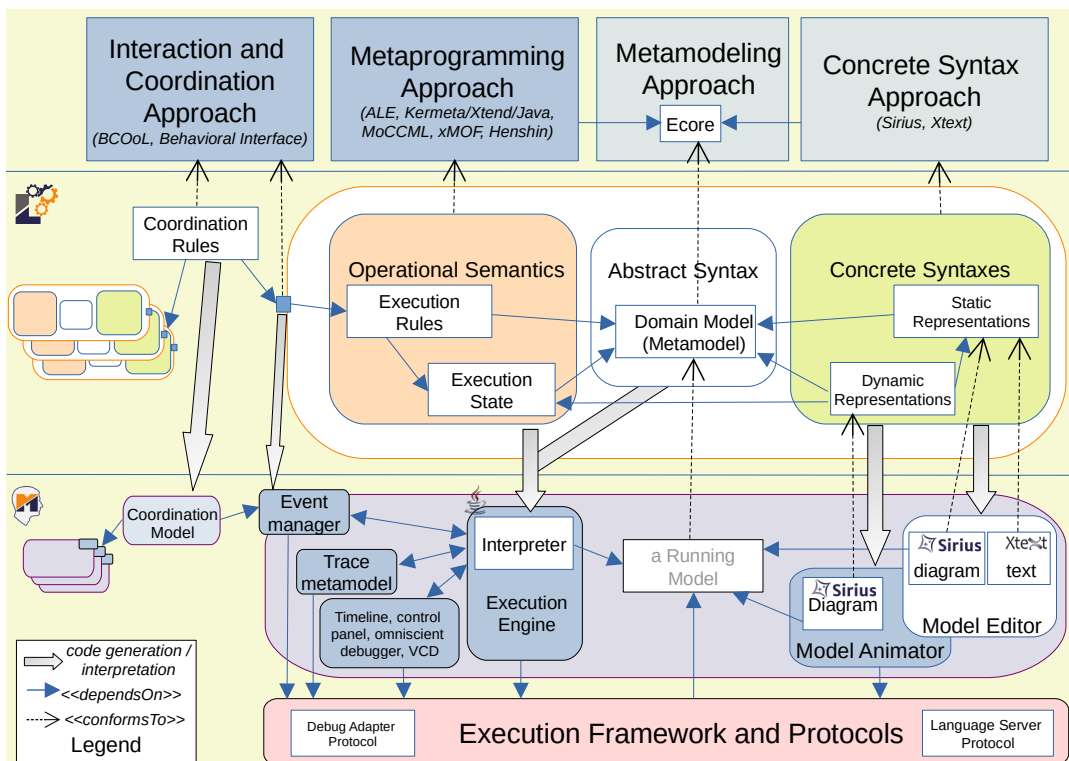
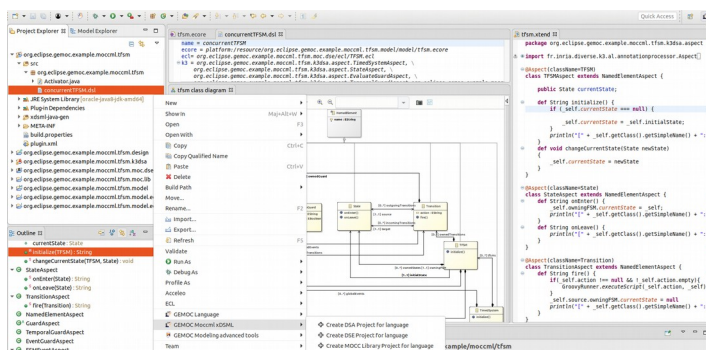
Ease tooling development

## Studio for Language Engineers

"A Language Workbench for configuring and building the tooling of Domain Specific Languages with a strong focus on their behavior and correctness."

### Why the GEMOC Studio:

- Open source EMF-based technologies
- Supports several approaches for the concrete syntax of languages (Xtext, Sirius)
- Supports several approaches for the behavioral semantics of languages (ALE, Java, MOCCML, Henshin, xMOF)
- Assistance for language definition and building (wizards, checkers)
- Assistance to define the languages behavior (Runtime Data, observable steps, Behavioral interface)
- Syntactic and semantic language reuse (modeltype, Melange, revisitor)
- Language coordination patterns



**Expected outcome:** implementation of a large ecosystem of collaborative, interoperable and composable modeling languages from GEMOC partners and its community

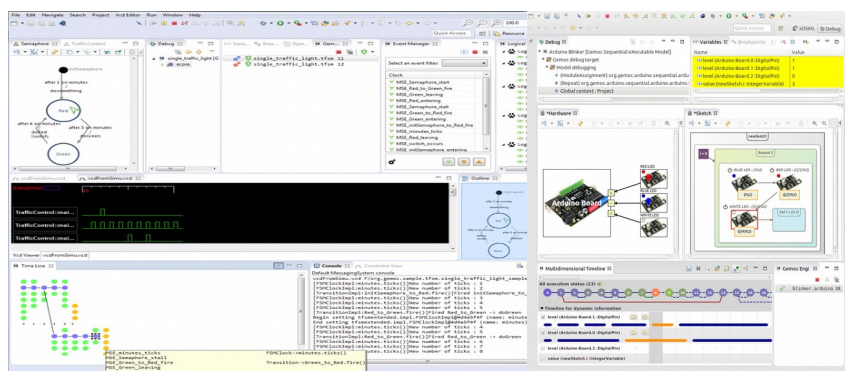
Leverage on know how and fuel research challenges

## Studio for Software and System Engineers

"A Modeling Workbench for Heterogeneous Modeling and Simulation of Complex Software-Intensive Systems"

### Why the GEMOC Studio:

- Homogeneous user interface and tooling across all DSLs
- State-of-the-practice model editing support (incl. Textual and graphical model edition)
- Cutting edge model execution with animation and advanced debugging features
  - Interactive execution with forward and backward stepping
  - Runtime data analysis and visualization (Multidimensional Data timeline, Variable view, Trace comprehension operators)
  - Event management and concurrency analysis (Event timeline, Call stack view)
- Execution coordination of multiple models (incl. heterogeneous behavioral models expressed in different languages) and cosimulation



**Expected outcome:** Prototypes, demonstrators, and pilot projects