RobMoSys meets CASM
(Project Ideas Pitch)

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Why CASM and what’s (C)ASM?

- Abstract State Machine (ASM)
  - Generalized finite state machine over arbitrary data structures
  - Rigorous formal method for specification and refinement

- Corinthian Abstract State Machine (CASM)
  - Research project (will be open-sourced as GPLv3, casm-lang.org)
  - Concrete ASM implementation and specification language [1]
  - Interpreter (fast numeric and symbolic execution) [2]
  - Compiler (optimization focused code generation) [2]
  - Retargetable/reusable infrastructure [3]
Project Ideas

- RobMoSys composition-structures (meta-models) in CASM
  - Specification and abstraction of blocks, component, activity, task, communication, sensors, services etc.
  - Simulation of robotic processes and interactions
  - Equivalence checking of different representations (of other tools?)

- RobMoSys task execution and behavior specification in CASM
  - Use of ASM built-in notion of parallel and sequential execution semantics to express understandable robotic interactions
  - Retargetable artifacts of task/activity/process specification to native source code or other (robotic) DSLs
Advantages of using CASM in RobMoSys

- Precise formal method to specify structural and behavioral (hierarchical) composition
- Platform and technology independent (software) system specification with focus on reuse, retarget and refinement abilities
- Analyzable with any rigorous form of verification and validation

Proposal & Project Partners

- Current idea: University of Vienna (UNIVIE) and 1-2 companies (one Austrian company possible?)
- Are companies present in the room, which are interested to be partners of our proposal?
Thank you for your attention!

References

