

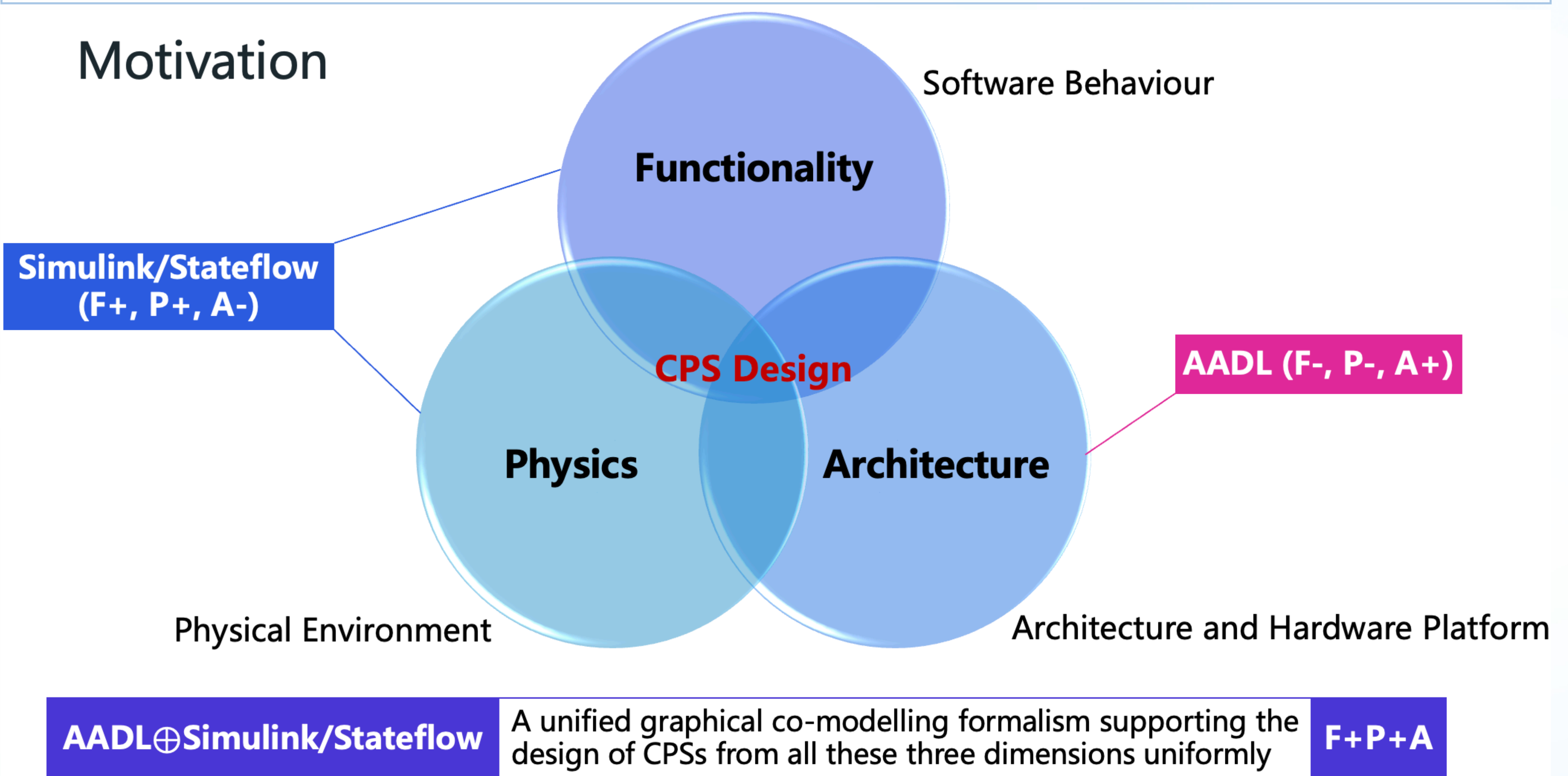
基于AADL \oplus Simulink/Stateflow的CPS 组合建模、分析与验证

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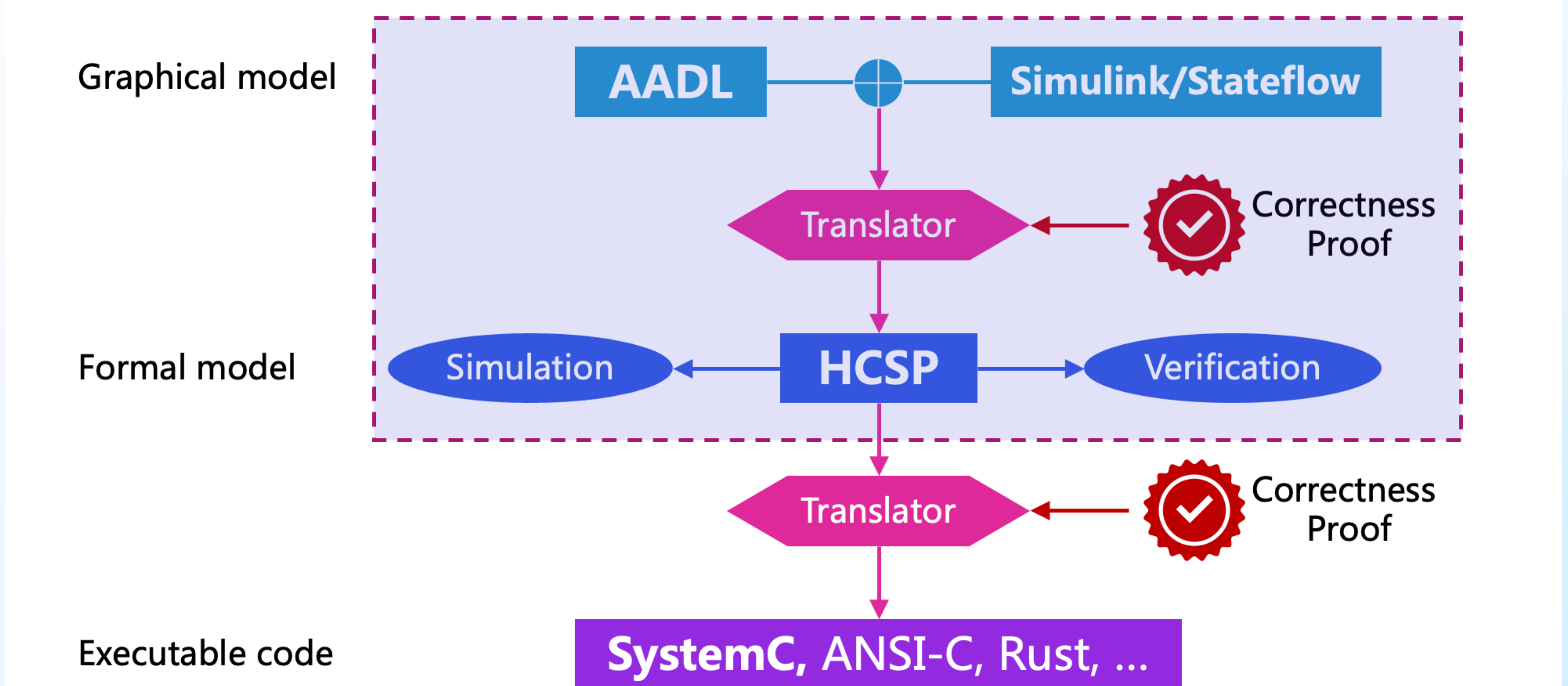
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Xiong Xu, Shuling Wang, Bohua Zhan, Xiangyu Jin, Jean-Pierre Talpin, Naijun Zhan: **Unified graphical co-modeling, analysis and verification of cyber-physical systems by combining AADL and Simulink/Stateflow.** *Theoretical Computer Science* 903: 1-25 (2022)

Motivation



MARS: a toolkit for Modelling, Analysis, and vRification of hybrid Systems



What the tool supports

- ✓ Co-modeling of AADL+S/S
- ✓ Hybrid Annexes
- ✓ Scheduling Analysis
- ✓ Latency and Safety Analysis
- ✓ Verification based on HHL

What the tool does not support

- ✗ More AADL components
- ✗ More scheduling policies
- ✗ Verification for complex models
- ✗ ...

Modeling and Simulation of a Cruise Control System

We constructed a model of a cruise control system and simulated different bus and delay configurations. Results show instability of the system under some configurations.

