

Anikó Costa, Ph.D., Universidade NOVA de Lisboa

## Using Petri nets within Cyber-Physical System's development IOPT-Tools - Web-based platform for embedded controller development based on IOPT Petri nets

Cyber-Physical Systems often include embedded controllers that are discrete event controllers. We advocate that model-driven methodologies using graphical languages supported by precise execution semantics are the best way to improve system analyses. Having interactive tools that allow model editing, composition and decomposition, simulation verification, and automatic code generation can increase the capability to achieve quick and reliable implementations. The IOPT Petri net class is one of the formalisms that allow the inclusion of physical requirements, namely input signal and input event dependencies and output signal and event activation. Moreover, the associated development environment, the IOPT-Tools allows not just model edition, and simulation, but also composition, decomposition, verification, and automatic code generation for hardware (VHDL) and software (C language) implementation.