

SEMINAR ANNOUNCEMENT

Wednesday January 29th, 2020

02:00 pm

Room U24C01, building U24

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Runtime Verification@UniGE: from Multiparty Global Session Types to RML

Abstract:

This seminar presents a short journey through Runtime Verification as it has been faced in the "RML project" (<https://rmlatdibris.github.io/>) at the University of Genova in the last seven years.

The journey started in 2012 with "Multiparty Global Session Types" [1], implemented by monitors integrated in a well known agent infrastructure for Belief-Desire-Intentions agents [2], Jason [3].

The work evolved over time leading to "Trace Expressions" [4] which were also used to monitor multiagent systems implemented in Jade [5].

Recently "RML" [6], a rewriting-based and system agnostic Domain Specific Language for Runtime Verification which decouples monitoring from instrumentation, has been designed, implemented, and used in a wide range of domains, from robotic systems to IoT, from resource management to object-oriented interfaces.

The more we work on Runtime Verification, the more exciting applications we devise for it: the seminar will mainly look at the future, whilst taking inspiration from the past.

[1] Ancona D., Drossopoulou S., Mascardi V. (2013) Automatic Generation of Self-monitoring MASs from Multiparty Global Session Types in Jason. DALT 2012. LNCS 7784. Springer

[2] Rao A.S., and Georgeff M.P. (1995). BDI agents: from theory to practice. In ICMAS (Vol. 95, pp. 312-319).

[3] Bordini R.H., Hübner J.F., Wooldridge M. (2007) Programming multi-agent systems in AgentSpeak using Jason, John Wiley & Sons

[4] Ancona D., Ferrando A., Mascardi V. (2016) Comparing Trace Expressions and Linear Temporal Logic for Runtime Verification. In Theory and Practice of Formal Methods. LNCS 9660. Springer

[5] Bellifemine F.L., Caire G., Greenwood D. (2007) Developing multi-agent systems with JADE, John Wiley & Sons

[6] Franceschini L. (2019) RML: runtime monitoring language: a system-agnostic DSL for runtime verification. In Programming '19, ACM

Short bio:

Viviana Mascardi is Associate Professor at DIBRIS, University of Genova. She co-authored more than 100 publications on research topics that include:

Modeling, verification, rapid prototyping, and development of platforms for complex and distributed systems (multiagent systems), Agent specification and implementation languages, Semantic Web and ontologies.

For each of the above themes, applications on different domains, often in collaboration with industrial partners, have been designed and developed