



IP PARIS

ACES (Autonomous and Critical Embedded Systems)

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ACES: Autonomous and Critical Embedded Systems (<https://aces.wp.imt.fr/>)

Loosely Coupled Systems

- Complex autonomic systems
- Fault-tolerant and asynchronous distributed computing
- Model Based Testing
- Security in Internet of Things
- Distributed Services

Strongly Coupled Systems

- Real-Time Systems
- Deterministic Platform
- Critical Systems Design Process
- Security and Safety
- Energy Consumption of Computation

Team


Leader : Laurent Pautet, Full Professor

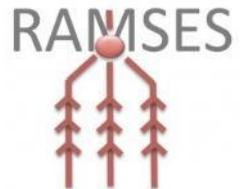
^ Team Members :

Dominique Blouin, Research Engineer
Etienne Borde, Assistant Professor
Florian Brandner, Assistant Professor
Ada Diaconescu, Assistant Professor
Petr Kuznetsov, Full Professor
Jean Leneutre, Assistant Professor
Gérard Memmi, Full Professor
Mounira Msahli, Assistant Professor
Elie Najm, Full Professor (Emeritus)
Matthieu Rambaud, Assistant Professor
Thomas Robert, Assistant Professor
Samuel Tardieu, Assistant Professor
Sylvie Vignes, Assistant Professor (Emeritus)

SAE AADL

(Architecture Analysis & Design Language)

- **Modeling Language for Safety-Critical Systems**
- **Analysis of properties such as:**
 - Timing, safety, schedulability, fault tolerance, security, functional simulation...
- **Textual and graphical notations**
- **AS2C committee members:**
 - Etienne Borde, Dominique Blouin, Laurent Pautet
- **AADL tools developed at Telecom**
 - Behavior Annex 
 - RAMSES (Refinement of AADL Models for the Synthesis of Embedded Systems)
 - RDAL (Requirements Definition and Analysis Language)
 - ALISA (Architecture-Led Incremental System Assurance)



ALISA in a Nutshell

(Architecture-Led Incremental System Assurance)

■ Initiated from RDAL

- **Fragment language** that can be coupled with an architecture language
- Inspired from FAA Requirements Engineering Management Handbook and other RE approaches (SysML, KAOS, i*)

■ Re-implemented and extended as the **ALISA set of textual notations**

- **ReqSpec**: Stakeholder goals and system requirements.
- **Verify**: verification methods, activities and verification plans with claims that requirements are satisfied by the results of verification activities
- **Alisa**: Assurance cases (consist of one or more assurance plan)
- **Assure**: Assurance case result instance, i.e., the evidence as the result of executing verification plans on one or more system instance models.
- **Organization**: Defines the stakeholders of a project

■ Future work

- Review and standardize as **Assurance Annex (Telecom Paris lead)**

A Requirements Engineering Approach for Usability-Driven DSL Development

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