Robots, How Reliable Are They?
Student: Mohammed Foughali
Supervisor: Félix Ingrand

Context
- Increasing involvement of robots in human environments ➔ Reliability?
- Poor connection between robotic functional software and formal methods
- Non-formal frameworks
- Ad-hoc, non automatic modeling
- Scalability issues

Approach
- Automatically bridge GenoM with V&V frameworks
- Use the generated models to verify important properties

GenoM to Fiacre/TINA & UPPAAL
- Develop templates GenoM→Fiacre & GenoM→UPPAAL
- Use TINA & UPPAAL to verify:
  ✓ Behavioral properties: e.g. a sent request is eventually served
  ✓ Timed properties: e.g. quantify the time between ports updates

Papers
- Model-Checking Real-Time Properties on The Functional Layer of Autonomous Systems
  M. Foughali, B. Berthomieu, S. Dal Zilio, F. Ingrand, A. Mallet
  At ICFEM 2016, November 14-18, Tokyo, Japan
- Toward a Correct-and-Scalable Verification of Concurrent Robotic Systems: Insights on Formalisms and Tools
  M. Foughali
  At IEEE ACSD 2017, June 25-30, Zaragoza, Spain