# HASLAB

## HIGH ASSURANCE SOFTWARE

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**Dependability**, **Information Security** and **Formal Methods** are essential pillars supporting the development of **Trustworthy Software Systems**. A trustworthy system is inherently reliable, secure, and available. It must behave as people expect it to, despite environmental disruption, human errors, and attacks by hostile parties. Design and implementation errors must be avoided, eliminated or somehow tolerated. It is not sufficient to address only some of these dimensions, nor is it sufficient simply to assemble components that are themselves trustworthy. Trustworthiness can only be achieved through a global approach to system development.

INESC TEC's **High Assurance Software Laboratory** has been active in both theoretical and applied research, exploring the synergies between these areas for two decades. The highest practical impact of the activity stems from participations in R&D projects (GORDA, CACE, STORK, Cumulo Nimbo, SMART, Minha) aiming at exploring knowledge and technology transfer on the design, implementation and validation of trustworthy software systems with several industrial partners.

The expertise at INESC TEC makes it possible to jointly address several aspects that are central to trustworthy software for today's critical systems:

- Rigorous modelling, and formal specification and verification of software systems' correctness, availability and security
- Dependable and scalable data management protocols, with emphasis on Cloud Computing and infrastructures for big data
- Large scale information dissemination and aggregation protocols such as gossip for handling very large amounts of data
- Technology to implement and integrate the necessary software components to obtain highly-efficient solutions without compromising security

## High Assurance Software Laboratory (HASLab) is an R&D Unit of INESC TEC hosted by the University of Minho, Portugal

**INDUSTRIAL PARTNERS**

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Fundação para a Ciência e a Tecnologia
MINISTÉRIO DA EDUCAÇÃO E CIÊNCIA

SUPPORTED BY THE FCT
WITHIN PROJECT
UID/EEA/50014/2013