Job Posting

United Technologies Corporation (UTC; NYSC: UTX) is headquartered in Farmington, CT, just outside of Hartford, CT. We employ over 204,000 talented individuals globally, achieve net sales in excess of $60 billion, and invest $4B each year back into research & development activities. Our aerospace businesses include Pratt & Whitney aircraft engines and Collins Aerospace—the combination of which make us the largest aerospace company in the world. Our commercial businesses include Otis elevators and escalators and UTC Climate, Controls & Security—a leading provider of heating, ventilation, air conditioning, fire and security systems and building automation controls.

United Technologies Corporation was founded by some of the world’s greatest inventors. We helped build the Second Industrial Revolution and brought about a century of urbanization and globalization. Now we need your help to build the next one.

United Technologies Research Center

The United Technologies Research Center (UTRC) is the corporate research center of UTC, operating at the leading edge of commercial and military aviation, aerospace systems, climate control, elevator design, and security and fire protection. At UTRC, we create new ideas and opportunities by collaborating across time zones, geographies and cultures. We are a community of high performing inventors, innovators, thinkers, manufacturers, motivators, leaders, problem solvers, dreamers and achievers.

We work with universities, external research organizations, and global business units to identify, develop and demonstrate innovative technology solutions, products, services and intelligent systems. We are looking for scientists and engineers who have a passion for innovation and a high tolerance for ambiguity. You must be an independent thinker and self-starter with a demonstrated ability to produce high-quality technical content by collaborating with fellow researchers and product specialists. You will have the opportunity to continuously develop and invent new technologies, products and processes. At UTRC, you’ll be part of an evolving, globally diverse company that’s moving fast to shape the future of technology - one full of career opportunities and the chance to contribute and grow in a variety of ways. We are committed to recruiting and retaining the best and brightest people from the broadest and most diverse talent pool possible, so that we can serve our customers globally. If you have ideas, inspiration and expertise to continue developing products and systems that make the world a better place to live, then we have a great opportunity for you to contribute to our continued legacy of innovation.

United Technologies Research Center Italy, ALES S.r.l.

ALES is a UTRC’s European research center with offices in Rome and Trento, Italy, specialized in model based technologies and methodologies for the design and verification of distributed safety critical embedded systems. ALES’ competences cross several application domains, such as aircraft electrical power distribution and air management systems, refrigeration and building automation, and several
disciplines, such as formal and run-time methods for verification of hybrid and discrete systems, requirement and safety analysis and design flow integrations. ALES provides services and innovation to an international network of UTC customers and offers a collaborative and stimulating working environment for candidates looking for a challenging and valid career.

Application:

Applicant should send the information to the following email address: ales.hr@utc.com

Applicants should add to their CV the following consensus statement to allow ALES to treat the information in compliance with the Italian privacy law:

Ai sensi dell’articolo 13 del Decreto Legislativo 30 giugno 2003, n. 196 – Codice in materia di protezione dei dati personali e dell’art 13 Regolamento UE n. 2016/679 (GDPR), La informiamo che i dati personali da Lei comunicati ad Ales srl., con sede a Roma, Piazza della Repubblica, 68, 00184 Italia, tramite invio del curriculum vitae e/o nel corso del colloquio di selezione, sono inseriti nella banca dati della Società e oggetto di trattamento con procedure informatiche o manuali in osservanza di quanto previsto dal D.Lgs. 196/2003, dal GDPR e dai provvedimenti del Garante per la protezione dei dati personali.

Pursuant to Article 13 of Legislative Decree of 30 June 2003, n. 196 - Code regarding the protection of personal data and of Article 13 of EU Regulation n. 2016/679 (GDPR), we inform you that the personal data you have communicated to Ales srl., based in Roma, Piazza della Repubblica, 68, 00184 Italia, by sending a curriculum vitae and/or during the selection interview, is entered in the Company database and subject to processing with IT or manual procedures in compliance with the provisions of Legislative Decree No. 196/2003, by the GDPR and by the rules of the Guarantor for the protection of personal data.
Senior Engineer – Cyber-physical Systems Simulation

Job Responsibilities
ALES S.r.l. invites qualified individuals to apply for a Cyber-physical Systems Simulation Senior Engineer position for applications related to the design, analysis, verification and validation of cyber-physical systems with a particular focus on model-based simulation technologies.

The successful candidate will provide technical expertise in the area of co-modeling, co-simulation and analysis of networked computational and multi-physical systems. The candidate shall be part of a team that handles the end-to-end application lifecycle from requirements elicitation, down to the testing and application release.

The candidate must be able to work in a multinational team environment focused on innovation techniques.

Education
The minimal education requirements are a Ph.D. in aerospace, mechanical or electrical engineering, computer science, (or a related field or the equivalent combination of education), or a MS in the same areas possibly supplemented by two years of industrial research after the degree in disciplines described below.

Experience/Qualifications
The candidate shall possess an in-depth knowledge and ability to apply and develop simulation based methods and technologies for the design and verification of complex systems. The candidate shall have an in-depth knowledge of model-based design theory (abstract interpretation, static and dynamic analysis) and practice (experience with modeling and simulation environments, solvers, etc) and a good knowledge of mathematical formalization, discrete and continuous dynamics modeling.

The successful candidate shall have experience with the basic principles in the domain of foundations of modelling (model management, model transformation, model and modelling language, etc) and simulation (in particular multi-formalism, hybrid simulation and co-simulation, etc).

Software plays a pivotal role, both as a component in a CPS and in the construction of “enabling” modelling and simulation tools. The candidate must have experience with both C and C++ and be expert on at least one of the two.

Experience with Models of Computations (Synchronous languages, State Machines, Hybrid Systems, etc.), knowledge of integration algorithms for continuous dynamics and co-simulation standards are required assets.

One of ALES key technology asset is a simulation platform for the design and verification of Cyber-Physical Systems. The successful candidate will preferably have understanding, and possibly development experience of simulation frameworks and new techniques that leverage modeling and simulation for analyzing complex CPS.
Summary of skills:

- **Mandatory:**
  - Experience with numerical analysis of DAE systems with emphasis on 3D systems e.g. CFD simulation software, FE, 3D multi-body
  - Models of Computations (Synchronous languages, State Machines, Hybrid Systems, etc.)
  - Advanced knowledge of and experience in modeling and simulation of cyber-physical systems
  - Basic concepts of uncertainty quantification and sensitivity analysis
  - Software engineering experience, C and C++ programming languages
  - Project leadership experience and ability to work independently while effectively managing concurrent technical tasks with competing priorities
  - Proficient verbal and written communication skills with the ability to communicate comprehensive knowledge effectively across multi-disciplinary teams

- **Preferred:**
  - Basic concepts of Distributed Embedded Systems – networked computational resources challenges
  - Basic knowledge of Software Design Principles and Software Architecture
  - Experience in modeling and simulation tools such as Dymola, Simulink

- **Desired:**
  - Avionics architectures and communication network protocols modeling and analysis (ARINC)
  - SW verification strategies based on SW/HW co-simulation and computational platform modeling
  - Experience in modeling and simulation tools such as SystemC, ns-3, OMNET++, GEM5, QEmu
  - Java programming and ideally have experience with EMF and Eclipse technology

The candidate shall have a high degree of autonomy and shall be able to integrate in a distributed and international team of developers; therefore being fluent in English is mandatory.

ALES being part of UTC provides great opportunities for a professional career growth and guarantees working on exciting, critical and therefore highly motivating projects.