



Grenoble INP - UGA is a member of international engineering and management education and research networks. It is widely recognized in national and international rankings.



8 schools + 39 laboratories

8300 students

1 300 teaching, research, administrative and technical staff

Grenoble INP - UGA is a renowned public institution of higher education and research, and a major player in the Grenoble ecosystem. It is the engineering and management institute of Grenoble Alpes University, and plays a leading role in the scientific and industrial community.

## Researcher in Virtual Reality

Position reference	2024-RESVIRTREALITY-GSCOP
Field of research	Collaborative & Integrated Engineering Design
Host laboratory	G-SCOP (UMR 5272 Grenoble-INP, UGA and CNRS) / Website : <a href="https://g-scop.grenoble-inp.fr/">https://g-scop.grenoble-inp.fr/</a>
Required profile	First stage researcher - (R1)
Location	Grenoble, France
Start date / contract term	15/04/2024 (18 months)
Contacts	<a href="mailto:romain.pinque@grenoble-inp.fr">romain.pinque@grenoble-inp.fr</a>

Grenoble INP - UGA is a leading public institution accredited with the French label "Initiative d'excellence". It offers innovative engineering and management programs, with an increasing internationalization of its course offers. The courses are grounded in sound scientific knowledge and linked to digital, industrial, organizational, environmental and energy transitions. The Engineering and Management Institute of Grenoble Alpes brings together more than 1300 staff members (teacher-researchers, lecturers, administrative and technical staff) and 8300 students, located on 8 sites (Grenoble INP - Ense3, Grenoble INP - Ensimag, Grenoble INP - Esisar, Grenoble INP - Génie industriel GI, Grenoble INP - Pagora, Grenoble INP - Phelma, Polytech Grenoble, Grenoble IAE and the INP Prepa). Grenoble INP is also a highly-ranked institution of higher education and research, leading the way in the fields of engineering and management on an international scale. It is a member of a large number of international academic and research networks. It is part of the European University UNITE!.

As part of Grenoble Alpes University, Grenoble INP has associated guardianship of 39 national and international research laboratories and of technological platforms. The research conducted there benefits both its socio-economic partners and its students. Grenoble INP is at the heart of the following scientific fields: physics, energy, mechanics and materials; digital; micronanoelectronics, embedded systems; industry of the future, production systems, environment; management and business sciences.

Grenoble INP - UGA is an equal opportunity employer committed to sustainability. Grenoble INP-UGA celebrates diversity and equity and is committed to creating an inclusive environment for all employees. All qualified applications will be considered without discrimination of any kind.

# Research

G-SCOP is a multi-disciplinary laboratory dedicated to meeting the scientific challenges imposed by changes in the industrial world. The laboratory's scope ranges from product design to the management of production systems, and draws on strong skills in design sciences and optimization. The research engineer will join the Collaborative and Integrated Design team and the VISION-R advanced interactive visualization technology platform. The aim of the Collaborative and Integrated Design skills area is to understand and model the interactions between experts and trades involved in the design of manufacturing products and/or associated services, and to propose supports (based on business representations), tools (integrated into designers' environments) and methods (integrated into the company's organization) to facilitate these interactions.

## Position description:

As part of the MIMESIS joint research laboratory between G-SCOP and the software editor SKYDEA, you will be involved in the invention, specification, development and evaluation of new interactive 3D interfaces - stereoscopic or otherwise - for collaborative (a)synchronous architecture design of technological systems (commercial aircraft, space launchers, satellites, automobiles, nuclear reactors, medical injection devices, etc.).

Modelling interfaces will be developed using the software (SkyReal, Unreal, Unity, etc.) and hardware (HMDs, CAVe, mini CAVe, touch screen wall, touch table, etc.) of G-SCOP's VISION-R advanced visualization technology platform.

You will work as part of a small, dynamic team of engineers, PhD students, post-docs and researchers attached to the joint research lab, which regularly interacts with private partners to mature demonstrators with business users and industrial data. You will also be a member of G-SCOP's Collaborative and Integrated Design research team, and take part in its scientific activities (team seminars, lab days, workshops, etc.).

You will take part in international conferences, publish your results in international journals, and contribute to scientific and industrial working groups.

## Main tasks:

- Needs elicitation
- Literature review and technological benchmarking
- Specification, design, development and testing of virtual reality applications on Unreal software
- Definition and development of means of storing and exchanging systems engineering data
- Design and production of experiments
- Documentation of software applications

## Skills needed:

### ▪ Interactive visualization:

- Virtual reality development (Unreal) and computer graphics
- Human-computer interaction
- HCI ergonomics
- Geometric modelling (Parametric, B-Rep, CSG, polyhedral, direct, etc.)

### ▪ Systems engineering:

- Conceptual systems modelling (SysML, UML, Capella, System composer, OPM, BPMN...)
- Continuous/discrete/hybrid systems simulation (Modelica, Bond graph, Simscape, Stateflow, Simulink)
- Systems engineering data interoperability (FMI, ReqIF, LOTAR, MoSSEC, Canonical XMI, OSLC, APIs...)
- Graph-oriented databases and ontologies for knowledge graph creation (Neo4j, Grakn, OWL...)

### ▪ Research methods:

- Quantitative (design of experiments, statistics, etc.) and qualitative (benchmarking, interviews, surveys, questionnaires, task and activity analysis, coding, focus groups, etc.) research methods.
- Writing of scientific articles
- Written and spoken English

## Required profile:

- You have a PhD in computer science or digital engineering.
- You have proven experience in virtual reality

## Specific requirements

Position assigned to a restricted area: NO

## How to apply

Applications (CV, Cover letter, PhD thesis manuscript, journal or conference papers, recommendation letter) must be sent to : [romain.pinquier@grenoble-inp.fr](mailto:romain.pinquier@grenoble-inp.fr)

Application deadline: 21/02/2024