



Offer #2024-07414

R&D Engineer - Computer Graphics Developing a Blender Add-on for 3D Design Drawing

Contract type : Fixed-term contract

Level of qualifications required : Graduate degree or equivalent

Fonction : Temporary scientific engineer

About the research centre or Inria department

The Inria centre at Université Côte d'Azur includes 37 research teams and 8 support services. The centre's staff (about 500 people) is made up of scientists of different nationalities, engineers, technicians and administrative staff. The teams are mainly located on the university campuses of Sophia Antipolis and Nice as well as Montpellier, in close collaboration with research and higher education laboratories and establishments (Université Côte d'Azur, CNRS, INRAE, INSERM ...), but also with the regional economic players.

With a presence in the fields of computational neuroscience and biology, data science and modeling, software engineering and certification, as well as collaborative robotics, the Inria Centre at Université Côte d'Azur is a major player in terms of scientific excellence through its results and collaborations at both European and international levels.

Context

Context and objective:

Designers draw extensively to externalize their ideas and communicate with others. However, drawings are currently not directly interpretable by computers. To test their ideas against physical reality, designers have to create 3D models suitable for simulation and 3D printing. But while drawing is visceral and quick, 3D modeling requires careful planning, precision and constraints to manipulate 3D shapes on screen.

The ambition of our research group is to bring the power of 3D engineering tools to the creative phase of design by allowing designers to create 3D models by drawing. To this end, we have developed a technology capable of automatically lifting design drawings to 3D (<https://ns.inria.fr/d3/SymmetrySketch/>). Our goal is now to demonstrate how this technology can streamline the Computer-Aided-Design workflow, and to take the first steps in industrializing this technology.

Location:

The project will be developed at Inria Sophia Antipolis, in the GraphDeco group (<https://team.inria.fr/graphdeco/>). The group does research on image synthesis and computer-aided design. Salary will follow the Inria grid and depends on experience.

Assignment

Achieving our goal entails three complementary sub-objectives:

- Implementing a demonstrator of our 3D drawing technology within a professional CAD software.
- Testing our demonstrator with expert designers.
- Transferring our technology to leading CAD software editors.

Based on preliminary discussions with CAD users and software editors, we have identified a set of key features to unleash the potential of our technology. Our first goal is to implement these features as an add-on to Blender, an open-source industry-grade 3D modeling software. Blender will serve as an independent platform to test our technology with expert CAD users, and to demonstrate how our algorithm can seamlessly bridge the 2D drawing and 3D modeling tools available in the established CAD pipeline.

We will hire professional designers and 3D modelers to stress test each of these features, first to make them robust to the diversity and complexity of real-world design drawings, but also to assemble a portfolio of artworks that will illustrate diverse ways in which our technology can be used in practice.

Within each iteration of feature development and testing, we will work hand-in-hand with software companies interested in our technology to assess how it addresses their specific needs.

Main activities

The candidate will be in charge of designing and implementing the Blender add-on based on our technology, and of planning and conducting testing sessions with end users (professional designers and 3D modelers).

Skills

The candidate must have experience in Python programming and in developing 3D graphics applications. Knowledge of Blender and of geometry processing libraries is a plus, although those skills can be acquired as part of the mission.

Benefits package

- Subsidized meals
- Partial reimbursement of public transport costs
- Leave: 7 weeks of annual leave + 10 extra days off due to RTT (statutory reduction in working hours) + possibility of exceptional leave (sick children, moving home, etc.)
- Possibility of teleworking and flexible organization of working hours
- Professional equipment available (videoconferencing, loan of computer equipment, etc.)
- Social, cultural and sports events and activities
- Access to vocational training
- Contribution to mutual insurance (subject to conditions)

Remuneration

From 2692 € gross monthly (according to degree and experience)

General Information

- **Theme/Domain** : Interaction and visualization
Software engineering (BAP E)
- **Town/city** : Sophia Antipolis
- **Inria Center** : [Centre Inria d'Université Côte d'Azur](#)
- **Starting date** : 2024-06-03
- **Duration of contract** : 12 months
- **Deadline to apply** : 2024-05-03

Contacts

- **Inria Team** : [GRAPHDECO](#)
- **Recruiter** :
Bousseau Adrien / Adrien.Bousseau@inria.fr

About Inria

Inria is the French national research institute dedicated to digital science and technology. It employs 2,600 people. Its 200 agile project teams, generally run jointly with academic partners, include more than 3,500 scientists and engineers working to meet the challenges of digital technology, often at the interface with other disciplines. The Institute also employs numerous talents in over forty different professions. 900 research support staff contribute to the preparation and development of scientific and entrepreneurial projects that have a worldwide impact.

The keys to success

The successful candidate should have knowledge in computer graphics and/or computer vision, and be interested in 3D modeling and related topics (geometry processing, human-computer interaction, numerical optimization).

The candidate should also be interested in developing tools to support designers, and in interacting with such expert users.

Warning : you must enter your e-mail address in order to save your application to Inria. Applications must be submitted online on the Inria website. Processing of applications sent from other channels is not guaranteed.

Instruction to apply

Defence Security :

This position is likely to be situated in a restricted area (ZRR), as defined in Decree No. 2011-1425 relating to the protection of national scientific and technical potential (PPST). Authorisation to enter an area is granted by the director of the unit, following a favourable Ministerial decision, as defined in the decree of 3 July 2012 relating to the PPST. An unfavourable Ministerial decision in respect of a position situated

in a ZRR would result in the cancellation of the appointment.

Recruitment Policy :

As part of its diversity policy, all Inria positions are accessible to people with disabilities.