



Terms of Reference for a C++ Software Developer

Background:

The French surgeon and teacher, Prof. Jacques Marescaux founded the Institute for Research against Digestive Cancer (IRCAD) in 1994 in Strasbourg, France. This is an internationally recognized centre with two main objectives: To teach the latest techniques in minimally-invasive abdominal surgery, and to research new computer-based systems to improve surgery. IRCAD is now a global enterprise located in five centres across the world. IRCAD Africa, located in Kigali, Rwanda, is the fifth IRCAD in the world after centres in France, Taiwan, and Brazil.

IRCAD France and Africa and have a combined Surgical Data Science (SDS) team with experts in data science, software engineering, artificial intelligence, robotics and clinical research. We are offering a permanent position beginning immediately, to join our growing SDS team in Kigali, specialized in C++ software development. This is a unique opportunity to work in a dynamic team to advance surgery in Africa and globally. The position offers professional growth to increase technical and non-technical skills.

Responsibilities

The specific responsibilities of the C++ software developer are as follows:

- To develop and maintain core functionalities of *Sight*, our open-source Surgical Image Guidance and Healthcare Toolkit (<https://git.ircad.fr/sight>).
- To develop, integrate and test new computer vision, deep learning and medical imaging algorithms for solving real-world medical problems in the context of computer-assisted surgery.
- To work “hand-in-hand” with the clinicians to integrate solutions for real-world use.
- To build a good culture of development within the team: to follow latest techniques, new trends and communicate research within the team.

Duties

The C++ Software Developers of IRCAD Africa produce code in cooperation with IRCAD France as a unified team. They use the agile methodology and the processes of the team and seeks to improve processes when needed.

They will also:

- Prepare personal progress reports (annual, monthly, quarterly) as required by IRCAD Africa
- Perform any other functions as required by IRCAD Africa

Qualifications and Experience:

- A minimum master's degree in computer science
- A strong knowledge and experience of modern C++ (11/14/17)
- A good understanding of the build process and tools like CMake
- Experience in image processing, computer vision, or computer graphics would be greatly appreciated
- A good understanding of 3D geometry will be an added value
- Experience of GitLab CI, Docker and Kubernetes will be an added value
- Excellent interpersonal skills as well as working well within a team environment
- Fluent in English. Good command of French will be an added value

Expected competencies:

- **Professionalism:** Knowledge and understanding of theories, concepts and approaches relevant to the area of work; good development skills, analytical and problem-solving skills; ability to apply judgment in the work environment; the capacity to plan own work and manage conflicting priorities.
- **Commitment to Continuous Learning:** Willingness to keep abreast of new developments in the field of work.
- **Technological Awareness:** Excellent understanding of software engineering (design patterns, test-driven development, SOLID and KISS principles, ...), and modern programming techniques such as multithreading.
- **Teamwork:** Good interpersonal skills and ability to establish and maintain effective working relations in a multicultural organization. Ability to provide effective support in relation to work conducted by colleagues.

Recruitment process:

- CV and cover letters will be reviewed
- For selected applications, a technical test will be held online
- After passing the test, a face-to-face interview will be held online or onsite

Contact information: