



SCIENCE & CREATIVITY TO BUILD A SUSTAINABLE WORLD



Research Engineer

Development of a tissue oxygenation monitoring system for athletes

Institution:	IMT Mines Alès (National School of Mines of Alès)
Primary Assignment:	Center for Teaching and Research in Computer Science and Systems (CERIS)
Administrative location:	Alès (Gard Department – Occitanie Region)
Contract type:	48-month fixed-term contract – Public law contract – Full-time
Start date:	July 1, 2026

1. About our institution, the Center for Education and Research in Computer Science and Systems (CERIS)

1.1 The Institut Mines-Télécom

The Institut Mines-Télécom (IMT), a “grand établissement” under the French Education Code, is a public scientific, cultural, and professional institution (EPSCP) primarily overseen by the ministers responsible for industry and digital affairs. As the leading group of engineering schools in France, it brings together 11 public engineering schools across the country, which educate 13,500 engineers and PhDs. IMT employs 4,500 people and has an annual budget of €400 million, 40% of which comes from its own resources. IMT comprises 2 Carnot Institutes, 35 industrial chairs, produces 2,100 high-level publications annually, holds 60 patents, and conducts €110 million in contract research.

1.2 IMT Mines Alès

The school’s mission: “Drawing on its affiliation with IMT and its regional roots, IMT Mines Alès provides its students with the best opportunities to achieve professional fulfillment, enabling them to become responsible contributors to the nation’s development while preserving the planet’s resources.” The values that drive us: boldness, commitment, collaboration, and excellence.

Founded over 180 years ago, IMT Mines Alès currently has 1,400 students (including 250 international students) and 380 staff members. It has two campuses in Alès and also has locations in Montpellier and Pau. Its students include general engineers, specialized engineers (through apprenticeships), doctoral candidates, and students in master’s or specialized master’s programs. It hosts over 500 trainees in continuing professional education.

IMT Mines Alès is a prestigious grande école ranked among the best engineering schools nationally and globally. Our school, founded in 1843, is located in Alès, a city on a human scale and the capital of the Cévennes, where the quality of life is highly valued by its residents. Located in the Gard department (30), 30 km north of Nîmes, Alès lies at the foot of the Cévennes National Park, of which it is—by far—the largest city, with 42,452 residents and a metropolitan area of 133,546 residents (29th largest metropolitan area in France, 5th in Occitanie).

The school has three high-level scientific and technological research and teaching centers, working in the fields of materials and civil engineering (C2MA), the environment and risk (CREER), and artificial intelligence and industrial

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and digital engineering (CERIS). These entities bring together approximately 85 permanent faculty members (half of whom hold HDR qualifications), 40 research support staff, and 100 doctoral and postdoctoral students, who produce over 130 top-tier publications and secure €3 million in research contracts annually, one-third of which are direct contracts with companies. These research staff contribute to 6 research units, including 4 UMRs. IMT Mines Alès is accredited to award doctoral degrees through 4 doctoral schools.

It has 12 technology platforms and 1,600 partner companies. Creativity is a defining characteristic that permeates all its activities. The school was the first to establish an incubator in 1984 (200 companies created to date, 1,000 jobs). The school offers rich and varied career paths: faculty members have opportunities for professional mobility across the various IMT schools and may also, if they wish, take on responsibilities within the school's functional departments (academic affairs, research, international relations, economic development, etc.) for part of their time.

At IMT Mines Alès, every individual is a key player in our Sustainable Development and Social Responsibility (SDSR) initiative. We are committed to promoting environmentally friendly practices, fostering diversity and inclusion, and ensuring ethical conduct in our activities. We encourage all our staff to adopt a responsible approach in their daily actions and to propose innovative ideas that strengthen our positive impact on society and the environment.

1.3 Center for Teaching and Research in Computer Science and Systems (CERIS)

CERIS houses two research units: first, the SyCoIA unit (Complex Systems and Artificial Intelligence), which aims to master complex systems in the context of change driven by the digital revolution; and second, the EuroMov Digital Health in Motion (EuroMov DHM) unit, jointly supervised by IMT Mines Alès - University of Montpellier, which focuses on human sensorimotor performance with applications primarily in health and sports. Two academic departments are affiliated with CERIS: 2IA for Computer Science and Artificial Intelligence and PRISM for Industrial Performance and Mechatronic Systems, as well as two technology platforms: AIHM for Alès Imaging and Human Metrology and PFM for the Mechatronics Platform.

The “Industry of the Future” area of excellence represents a new way of thinking about and organizing business, drawing heavily on key principles, resources, and technologies whose impact is organizational, methodological, and technological. The PRISM department offers students the opportunity to specialize in industrial and mechatronic systems engineering to meet the challenges of the digital transition in the service of performance. It is centered, among other things, on strong competencies in complex systems engineering.

Amid rapid technological change, our organizations—whether industrial, educational, medical, governmental, administrative, or financial—are increasingly interconnected and rely on IT tools and solutions that increasingly incorporate artificial intelligence. The 2IA department offers students the opportunity to specialize in software development to address the challenges posed by this transformation. This specialization is offered through two tracks: an initial training program and an apprenticeship program.

1.4 Introduction to the Research Team

The successful candidate will be assigned to the EuroMov DHM research unit. They will report directly to the director of CERIS and functionally to the EuroMov DHM coordinator.

EuroMov DHM is an interdisciplinary research unit created in 2021 by the University of Montpellier and IMT Mines Alès, bringing together experts in movement sciences, health, and computer science. This research unit aims to foster cross-fertilization between artificial intelligence, movement sciences, and health sciences to understand human behavioral plasticity in order to explore new therapeutic approaches and improve sensorimotor recovery, and to find a scientific metaphor within this field that serves as a source of inspiration for new digital approaches. The central focus of the EuroMov DHM Research Unit concerns human and digital plasticity viewed through the lens of human movement. Human plasticity, or neuroplasticity, refers to the brain's ability to evolve and adapt throughout life. In addition to genetic factors and the environment in which a person develops, their actions and movements play a decisive role in brain plasticity. Understanding the dynamic brain-movement links at different levels will allow us to promote brain plasticity and thereby improve sensorimotor recovery or rehabilitation. Analyzing the mechanisms underlying neuroplasticity will allow us, through analogy or mimicry, to develop new models for machine learning or the adaptive control of complex systems, to better manage human-machine interaction, and to create context-sensitive software systems.



1.5 The OXYMOVE Joint Laboratory

The OxyMove Joint Laboratory, funded by the French National Research Agency, is part of a long-term collaborative effort between academic research and industry, with the goal of establishing an innovation platform dedicated to physiological monitoring under real-world conditions. Monitoring muscle oxygenation represents the first operational component of this program, which is set to expand into other fields. Near-infrared spectroscopy (NIRS) technologies, combined with artificial intelligence algorithms, open up new possibilities for real-time monitoring of athletes' muscle physiological activity during their sports activities. From a scientific standpoint, understanding athletes' physiological responses is essential for optimizing athletic performance and muscle recovery. Research conducted by the EuroMov Digital Health in Motion research unit has highlighted the importance of accurately measuring muscle tissue oxygenation during and after exercise. Semaxone develops near-infrared spectroscopy (NIRS) sensors that measure hemodynamic fluctuations in tissues in real time. These sensors are miniaturized and designed to withstand extreme conditions, making them ideal for use during physical and athletic activities. The market for physiological monitoring technologies is booming. The sports, fitness, rehabilitation, and healthcare sectors are showing growing interest in advanced technological solutions that improve individuals' performance and well-being. The innovations developed by the OxyMove Joint Laboratory address a growing demand for real-time monitoring tools capable of providing accurate and actionable data. Strategic partnerships with companies in the sports sector and clinics specializing in sports medicine enable the testing and application of innovations in real-world settings. The OxyMove Joint Laboratory positions itself at the intersection of science, technology, and industry to develop innovative solutions that meet the current and future needs of the sports and health/wellness sectors. Thanks to the combined expertise of EuroMov DHM and Semaxone, this joint laboratory is well-positioned to become a leader in the field of physiological monitoring, offering tangible benefits to those engaged in physical and sports activities. The development of such innovations is an ambitious undertaking and is the focus of this job opening.

2. Job Description

The position is based at the Center for Teaching and Research in Computer Science and Systems (CERIS) at IMT Mines Alès, within the EuroMov Digital Health in Motion (DHM) research unit and the ANR OxyMove joint laboratory.

As a research engineer at CERIS, your primary responsibilities will involve designing and conducting experiments, as well as performing analyses both within the laboratory and in more natural environments. You will be required to write technical reports and promote the research work conducted. You will also be responsible for supervising students participating in various projects carried out within the laboratory (particularly in human movement science and programming). You may also be involved in the dissemination and communication of the work and tools developed by the laboratory.

The main responsibilities will be as follows:

- ▶ Designing and conducting experiments in human movement science and sports
- ▶ Data analysis, development of new innovative tools, and data formatting
- ▶ Scientific dissemination of results and outreach to the general public
- ▶ Supervising and mentoring students involved in the various projects developed in the laboratory

This position combines applied research and innovation, with a strong link between academia and industry.



3. Desired profile and general evaluation criteria

Your supervisor and the existing team will support you in developing your skills, while valuing your experience and talents:

Minimum required education and/or experience:

Beyond your degree, your personality will make the difference. 

- ▶ Ph.D., preferably in “Biology,” “Neuroscience,” or “Science and Technology of Physical and Sports Activities”

Required skills, knowledge, and experience:

- ▶ Significant experience in designing experimental protocols involving human subjects.
- ▶ Excellent skills in the acquisition, analysis, and processing of neurophysiological data from near-infrared spectroscopy sensors (mNIRS and/or fNIRS) as well as electrophysiological sensors (sEMG and/or EEG and/or ECG).
- ▶ Expertise in data processing in the time and frequency domains using Matlab, Python, or R.
- ▶ Good knowledge of statistics.
- ▶ Solid foundation in the development and adherence to ethics protocols and data management plans.
- ▶ Proven skills and experience in organization and teamwork: organizing meetings, planning activities, contributing to the drafting of administrative documents, and providing guidance.
- ▶ Ability to publish research findings in peer-reviewed journals.

Desirable skills, knowledge, and experience:

- ▶ International research experience
- ▶ Basic skills in machine learning
- ▶ Experience in setting up research or collaborative projects demonstrating the ability to build bridges between industry and academic research
- ▶ Ability to prepare grant proposals

Required technical and soft skills:

- | | |
|---|-------------------------------------|
| ▶ Dynamism | ▶ Diligence and methodical approach |
| ▶ Independence | ▶ Initiative |
| ▶ Commitment | ▶ Adaptability |
| ▶ Teamwork | ▶ Intellectual curiosity |
| ▶ Organizational skills | ▶ Creativity and innovation |
| ▶ Genuine motivation for research and development | ▶ Scientific English |

4. Application



Administrative Application Requirements

The position offered by IMT Mines Alès is a 48-month fixed-term, full-time contract under public law, governed by the management framework of the Institut Mines-Télécom, job code R, Research & Development Engineer, Category II.


Salary: Your salary will be reviewed and determined based on your experience and relevant skills.



IMT Mines Alès
École Mines-Télécom



How to apply?

Applications (CV and cover letter) should be sent **exclusively to:** 

<https://institutminestelecom.recruitee.com/o/ingenieure-de-recherche-developpement-dun-systeme-de-suivi-de-loxygenation-tissulaire-pour-le-sportif-cdd-48-mois-imt-mines-ales>

The recruitment team will carefully review your application.



Recruitment Schedule

A panel of several people will meet with you and ensure you have the best possible conditions to succeed in this interview.

Application deadline : 05/03/2026

Estimated date of the panel meeting : 05/19/2026

Desired start date : July 1, 2026



Contact Information

If you need further clarification on any aspect of the application, please feel free to contact the individuals listed below:

▶ Regarding teaching/research:

Jacky MONTMAIN, Director of CERIS

✉ : jacky.montmain@mines-ales.fr

Phone: (+33) (0)4 34 24 62 94

Gérard DRAY, Professor

✉ : gerard.dray@mines-ales.fr

Phone: (+33) (0)6 14 20 35 33

▶ For administrative matters:

Géraldine BRUNEL, Director of Human Resources

✉ : geraldine.brunel@mines-ales.fr



Onboarding

A smooth onboarding process for a successful start

Upon your arrival, you will undergo an onboarding period to help you familiarize yourself with your responsibilities and work environment. You will be welcomed by your HR contact, who will guide you through all the necessary steps for a smooth transition into your new role.