

----- JOB ANNOUNCEMENT -----

POSITION TITLE
Assistant/Associate Professor in Photonics

TELECOM PARIS

Télécom Paris, a school of the IMT (Institut Mines-Télécom) and a founding member of the Institut Polytechnique de Paris, is one of the top 5 French general engineering schools.

The mainspring of Télécom Paris is to train, imagine and undertake to design digital models, technologies and solutions for a society and economy that respect people and their environment. The school is committed to providing an environment conducive to the development of all students and research professors, and is voluntarily and sustainably committed to an ambitious plan for social and ecological transition. It is working to increase the number of female research professors and to reduce the disparities between men and women.

An inclusive campus on a "human scale" but with a strong international component, Télécom Paris is recognized for its proximity to companies. This public school guarantees excellent employability in all sectors and is the leading engineering school for the entire digital vertical (from hardware layers to uses). With its excellent teaching and innovative pedagogy, Télécom Paris is at the heart of a unique innovation ecosystem, based on interaction and the importance of project mode in its training on the one hand, and its interdisciplinary research on the other. Its teacher-researchers are affiliated with two research laboratories: on the one hand, the LTCI laboratory, which is presented by the HCERES as a flagship unit in the field of digital sciences with remarkable international influence; and on the other hand, the i3 laboratory, Institut interdisciplinaire de l'Innovation (I3 - UMR 9217 of the CNRS), which pursues a multidisciplinary research program focused on innovation in the framework of a collaboration with the École Polytechnique and Mines ParisTech.

Télécom Paris is positioned as an open-air laboratory for all the major technological and societal challenges: artificial intelligence, quantum computing, IOT, cybersecurity, large-scale digital equipment (Cloud), 5G/6G, Green IT.

Based in Palaiseau, at the heart of the Institut Polytechnique campus alongside the École Polytechnique, ENSTA, Télécom Sud Paris and ENSAE, Télécom Paris also has an incubator based in Paris at the heart of the French start-up ecosystem.

SCIENTIFIC CONTEXT

Télécom Paris invites applicants for the recruitment of a full-time Assistant/ Associate faculty position in the Optical Telecommunications group (GTO) of the Communications and Electronics department (COMELEC).

The GTO group conducts research in high-speed communication systems, optical network architectures, semiconductor optical components, integrated photonics and fiber optic sensors. The group is also well positioned to perform research in the fields of quantum communications and technologies. In this context, we are looking for a candidate with a multidisciplinary research orientation linked to the above-mentioned fields. The candidate will have to set up an ambitious research program, take part in teaching at Télécom Paris, fit into the Masters programs of the Saclay scientific cluster, and contribute to the service of the institution and the profession. Priority will be given to candidates with strong expertise in experimental photonics, mainly in the following areas: 1) Quantum technologies for optical communications and 2) Artificial intelligence in photonics. However, applications with outstanding academic records and covering the other research areas of the group will also be considered carefully. The candidate's innovation, originality and potential will also be highly valued.

1) Quantum technologies for optical communications

The second quantum revolution has seen the emergence of new quantum technologies, notably quantum computers and quantum communication systems, which have the potential to revolutionize

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the way we process information. There has been a significant acceleration in experimental evidence of feasibility of quantum communications in recent years, including secure ground-to-air key-exchange protocols, which naturally raises issues of European sovereignty. These quantum communication systems offer unprecedented levels of security. Although quantum computing has not yet reached this level of maturity, quantum computers are also capable of solving complex problems that are currently difficult, if not impossible, to solve with conventional computers. The development and study of new systems and/or sub-systems using quantum technologies (nanotechnologies or others) for applications in optical communication systems (transmitters, receivers, transmission channel, encryption, etc.) is a vigorous research area.

2) Artificial intelligence in photonics

Advances in artificial intelligence (AI) systems are opening up new application areas related to some of society's most pressing problems in health, education, transport, public services and business productivity. These systems also need to be optimized, in particular by reducing their energy footprint, a goal to which optics can make important contributions. Security needs AI for intrusion detection and other sensor-based applications. As investment and progress in AI accelerate, interdisciplinary collaborations are needed to optimize AI-based systems for their widespread deployment. Energy-efficient high-speed computing through neural networks and the acceleration of the learning process of algorithms, using optoelectronic devices, non-linear optics and photonic integrated circuits is currently an active experimental research area.

PREFERRED SCIENTIFIC EXPERTISE

Proven experience in experimental photonics related to one of the following areas:

- Quantum technologies / components
- Optical and quantum communications systems
- Digital signal processing for optical and quantum communications
- Integration of electronics and photonics
- Non-linear optics at chip scale
- Optical neural networks
- Innovative use of AI for photonic devices and systems

JOB DESCRIPTION

MAIN RESPONSIBILITIES AND DUTIES

- 1. Applicants should contribute to educational development efforts of courses in their scientific field.**
- 2. They should conduct research within the context of the above-mentioned research areas of interest**
- 3. They should participate in the development of partnerships, collaborations, and contractual agreements in their scientific field.**

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POSITION RESPONSIBILITIES

Teaching:

In collaboration with the other faculty members of the department:

- Provide courses consistent with areas of knowledge, skills-set, and departmental needs;
- Teach labs and tutorials for undergraduate and graduate students;
- Serve on juries for prospective students who are applying for engineering courses, specialized masters, etc.;
- Contribute to the analysis of training needs;
- Design and organize teaching activities for undergraduate and graduate students;
- Design and implement project-based teaching;
- Supervise student projects;
- Develop courses and teaching tools in the above-mentioned field.

Research:

- Engage in research activities in the scientific field concerned;
- Write proposals and participate in projects with partners from the Institut Polytechnique de Paris, the Institut Mines-Télécom or other institutions from the academic and/or corporate world, in particular in the framework of national or European projects;
- Carry out industrial research contracts;
- Explore and develop partnerships within the industry and establish contractual agreements.

Coordination:

- Participate in and contribute to the scientific activities of the group (seminars, presentations, juries, etc.).

Fostering the recognition of Télécom Paris and the Institut Polytechnique de Paris:

- Disseminate research findings via scholarly writing and publication;
- Give presentations and seminars;
- Take an active role in scholarly and professional organizations;
- Maintain close relations with academic institutions, research centers, and companies.

Other responsibilities:

- Participate in the scientific, pedagogical, and management activities of the department and/or institution;
- Where appropriate, direct and manage the staff placed under their responsibility or supervision;
- Report on the activities and results of the tasks for which they are responsible.

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SKILLS
<p>Required skills, experience, and knowledge:</p> <ul style="list-style-type: none"> - In-depth theoretical or applied knowledge in their field of expertise; - An excellent command of spoken and written English. - If the candidate does not speak French, from the moment they are hired they must commit to reaching a professional proficiency of French as quickly as possible while under contract. <p>Preferred skills, experience, and knowledge:</p> <ul style="list-style-type: none"> - Post-doctoral or international experience in an academic or industrial laboratory is appreciated; - Teaching experience. <p>Other abilities and skills:</p> <ul style="list-style-type: none"> - The ability to be an active team member in a diverse faculty, staff, and student environment; - Strong teaching, pedagogical, and mentoring capabilities; - Superb written and interpersonal communication skills.

REQUIRED QUALIFICATIONS
<p>Candidates with one or more of the following required qualifications may apply:</p> <ul style="list-style-type: none"> - Doctorate or equivalent; - Civil servant recruited through the École Polytechnique or ENA or former student of the École Normale Supérieure and ≥ 3 years of professional experience; - Holds a post-graduate degree from an engineering, business, or management school and has ≥ 5 years of professional experience; - Holds a post-graduate degree and has ≥ 5 years of professional experience; - Is a high-level business executive with ≥ 8 years of professional experience.

DESIGNATION AND CAREER DEVELOPMENT
<p>The person recruited will obtain the title of Assistant / Associate Professor. He/she will be encouraged to obtain, as soon as possible, his/her HDR (habilitation to direct research). The HDR is one of the prerequisites to apply for promotion to Full Professor.</p>

APPLICATION INSTRUCTIONS
<p>Send the documents below via the career site :</p> <ul style="list-style-type: none"> - Curriculum Vitae - Cover letter - Research statement (max 4 pages) - Teaching statement (max 4 pages) - Copy of the 3 best publications - Names and emails of two references - PhD reviewers' reports and defense report (if applicable) <p>Contact for further information: Frédéric Grillot, grillot@telecom-paris.fr</p>

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SELECTION
<p>The selection process consists of 4 steps:</p> <ul style="list-style-type: none"> - Elimination of applications that do not have the required qualifications - Exchange with the host research group to establish a list of shortlisted candidates - Preliminary interview with Human Resources - Hearing by the recruitment committee and ranking of the selected candidates - Final interview with the Director of Télécom Paris

ADDITIONAL INFORMATION

Date posted: 2nd January 2024
Contract type: CDI (permanent contract)
Job location: Télécom Paris, 19 Place Marguerite Perey, Palaiseau 91120, France
Department/Unit: COMELEC Department
Superior/Supervisor: Van Tam Nguyen (Department Head)
Category / job title: II – C
Categories / titles agents can apply for: II – C

How to apply
<p>Apply via the careers website: https://institutminestelecom.recruitee.com/o/assistantassociate-professor-in-photonics-cdi</p>
Application deadline: 12 March 2024

*Telecom Paris is an equal-opportunity employer.
All our positions are open to individuals with disabilities.*