Job Title: Internal Research Fellow (PostDoc) in Emerging Technologies and Earth Observation

Req ID **8619** - Posted **05/02/2019**

EUROPEAN SPACE AGENCY

Research Fellowship Opportunity in the Directorate of Earth Observation Programmes.

ESA is an equal opportunity employer, committed to achieving diversity within the workforce and creating an inclusive working environment. Applications from women are encouraged.

Post
Internal Research Fellow (PostDoc) in Emerging Technologies and Earth Observation
This post is classified F2 on the Coordinated Organisations' salary scale.

Location
ESRIN, Frascati, Italy

Our Team and Mission
The Φ-lab exists to accelerate the future of earth observation, by helping Europe's earth observation and space ecosystem adopt disruptive technologies and methods. Right now, we're working with AI, cubesat, drone and hyperspectral payload data and VR, but HAPs, quantum technologies and distributed ledgers are on our to-do list. Φ-lab is part of the ESA Earth Observation Programme's Φ-Department developing future systems for earth observation. Φ-lab also hosts ESA's InCubed programme, providing rapid funding of innovative public private partnerships to exploit new EO markets. Φ-lab also convenes experts from across the World to develop research agendas on the relevance for EO of emerging technology topics including AI, distributed ledgers and quantum computing.

Φ-lab tests concepts in 1-3 month Case Studies executed by a multidisciplinary research team that you'd be a part of. Successful ideas are scaled up through partnerships with ESA staff, external researchers and university institutes, new space companies in every ESA member state, and disseminated through scientific publications and conferences and scale up projects. The Φ-lab research team will grow to 15-20 staff in 2019, including this intake of research fellows and secondees from industry and visiting fellows. The research team is supported by a team of engineers and the lab's leadership team. Φ-lab gets Case Study requests from across ESA's Earth Observation Programme and industry, and in we expect proposals from InCubed bidders, new space companies, university partners and ESA's Business Incubation Centres.

Interested candidates are highly encouraged to visit the ESA website: www.esa.int

Fields of research and activities
As a research fellow you will:
- Propose and make the case for your own research case studies;
- Help deliver case studies proposed by others using an agile sprint based approach over periods up to 3 months;
- Help prioritize proposals, in collaboration with Earth Observation Program leadership and ideally collaborating with industry.
- Link your work to existing activity in the Earth Observation Programme, including in science, future systems, ground segments and applications, so helps them adopt new disruptive approaches.
- Work with partners from academia and industry to help deliver research case studies, through external projects commissioned from them to accelerate your work.
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By the time you leave Φ-lab, you'll have worked on 6-8 case studies, co-authored papers on these, had substantial experience of agile R&D, had seminars with or worked with 50-100 World experts on our core topics, attended 1-3 international conferences or events, and worked directly with leaders from across ESA and Europe's New Space companies.

Your research will apply artificial intelligence to earth observation and geospatial data, and may involve one of more of the following topics:

- Small Sat mission concepts, High Altitude Platforms, miniaturised sensors
- Convergence of IoT and observational data, hyperspectral data, ultra-high resolution data
- Distributed ledgers and quantum computing applications to earth observation.

There's more information research case studies we're currently doing on our blog:
http://blogs.esa.int/philab/

In addition you will:

- Carry out research as part of a team in one or more of the fields of research,
- Lead and assist interdisciplinary projects with other Φ-lab members and experts from elsewhere (e.g. relevant ESA departments, industry or the research community),
- Publish peer-reviewed literature, and promote/share your results and tools through digital tools, including social media and Jupyter notebooks, etc,
- Perform and participate in assessments on new technologies of strategic interest for ESA, and contribute to the Φ-lab research and innovation strategy.

Technical competencies

Knowledge relevant to the field of research
Research/publication record
Ability to conduct research autonomously
Breadth of exposure coming from past and/or current research/activities
General interest in space and space research

Behavioural competencies

Innovation & Creativity
Continuous Learning
Communication
Relationship Management
Self Motivation
Problem Solving
Cross-Cultural Sensitivity

Education

Applicants should have recently completed, or be close to completion of a PhD in related to our Fields of Research.
Preference will be given to applications submitted by candidates within five years of receiving their PhD.
In particular for this position, the following is also required:

- A degree in relevant scientific disciplines, in particular computer science, or engineering, space science, data science, or new space business engineering;
- Proficiency in programming languages, in particular Python.

Additional requirements

- Experience in the new space industry, commercial analysis, cost-benefit analysis
- Proven experience leading research, with international recognition and peer reviewed publications;
- Ability to think outside the box and explore new avenues, with natural curiosity and a passion for new subjects and research areas;
- Demonstrated experience in leading research initiatives and working autonomously;
- Experience of applying Agile development approaches to R&D problems.
- Communicate effectively in written and oral form and in presentations.

The working languages of the Agency are English and French. A good knowledge of one of these is required. Knowledge of another Member State language would be an asset.

Other information

For behavioural competencies expected from ESA staff in general, please refer to the ESA Competency Framework.

For this RF Opportunity, in addition to your CV and a cover letter stating your motivation for applying, your application must include a research case study proposal as set out in (3.) below, which is to be attached in the "additional documents" field of the "application information" section.

1. A 1 page cover letter (minimum 10 point, Times);
2. A 2 page CV, with hyperlinks to your publication record, LinkedIn profile and github account, where available;
3. Case Study: you should draft a proposal for a Φ-lab Case Study and include it with your proposal (maximum 250 words). Assessment of this will form part of your application. It will be assessed against:

- Ability to concisely explain your ideas
- Potential impact on the earth observation research and industrial community
- Scalability of the concept
- Fit with existing mix of skills in the lab (primarily machine learning and earth observation)
- Realism of the proposal, methodology and schedule for a 3 month project that involves up to 6 researchers.

The closing date for applications is 3 March 2019.

Candidates are asked to arrange for 3 reference letters, to be sent by the referees themselves, before the closing date to temp.htr@esa.int. Please ensure your name is mentioned in the subject of the e-mail.

The Agency may require applicants to undergo selection tests.

If you require support with your application due to a disability, please email contact.human.resources@esa.int.

Please note that applications are only considered from nationals of one of the following States: Austria, Belgium, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Luxembourg, the Netherlands, Norway, Poland, Portugal, Romania, Spain, Sweden, Switzerland, the United Kingdom and Canada and Slovenia as well as Bulgaria, Cyprus, Latvia, Lithuania, Slovakia as European Cooperating States (ECS).
Priority will first be given to candidates from under-represented Member States.

In accordance with the European Space Agency's security procedures and as part of the selection process, successful candidates will be required to undergo basic screening before appointment