Consiglio Nazionale delle Ricerche IEIIT
Istituto di Elettronica e di Ingegneria dell'Informazione e delle Telecomunicazioni

"BANYAN: Big dAta aNalYtics for radio Access Networks"
Funded by the H2020 Marie Skłodowska-Curie Action
ETN programme G.A. N° 860239

Short summary in English of the Call for Applications: IEIIT-002-2021-TO
available at:
https://bandi.urp.cnr.it/assegni/faces/pubblica/RisultatoCercaAssegniPubblica.jsp

Call for applications for the assignment of **1** Early-Stage Researcher **ESR** position to be enrolled at Consiglio Nazionale delle Ricerche – Istituto di Elettronica e di Ingegneria dell'Informazione e delle Telecomunicazioni IEIIT CNR (Institute of Electronics, Computer and Telecommunication Engineering), Corso Duca degli Abruzzi 24, 10129 Torino, Italy within the **BANYAN** – Big dAta aNalYtics for radio Access Networks – European Industrial Doctorates (EID) network project, grant agreement n. 860239, funded by HORIZON 2020/ Marie Skłodowska-Curie Action, in the field of the spatial-temporal characterization of patterns of users' demands for individual mobile services at macroscopic (citywide) scales.

The offered position will start tentatively by April 2021 and last **three** years.

The BANYAN consortium encompasses:
Within the academic sector, four world-leading academic groups/departments are involved. The Consiglio Nazionale delle Ricerche (CNR) is the largest public research body in Italy with multidisciplinary skills, which has the task of carrying out scientific research projects in the main sectors of knowledge and applying the results for development, promoting innovation, the internationalization of the "research system" and favoring the competitiveness of the industrial sector. The Networks Data Science team at **IMDEA Networks Institute** is well recognized internationally for its strong expertise and achievements in the characterization of mobile network traffic, and for the associated applications to network operations. The DCST at **The University of Cambridge** (UCAM) has a world reputation in computing, communications, data analytics and machine learning; **Universidad Carlos III de Madrid** (UC3M) and **Politecnico di Torino** (PoliTo) are leading European universities, with high reputations in telecommunication engineering. **Within the private sector**, **Ranplan Wireless Network Design Ltd**. produces the world's only joint indoor-outdoor HetNet planning tool – Ranplan-Pro and has established initial capability on analyzing data from both cellular and social networks. **Orange** is a leading operator, and Orange Labs, where the seconded ESRs will be hosted, is at the forefront of 5G development and telecom big data analytics.
The research activities of the BANYAN consortium have the common goal of preparing the ESR to develop data analytics and machine learning approaches for the proactive deployment and optimization of 5G and multi-RAT networks. The ESR will therefore have the opportunity to develop their hands-on skills in data processing, feature extraction, optimization methods, Hadoop and Apache Spark-based distributed computing platform and software programming.

In accordance with the training activities foreseen in the BANYAN project, the **36**-month training activity will consist of 18 months to be carried out at the CNR IEIIT headquarters and 18 months of internship in companies of the partners of the BANYAN consortium. Specifically, 12 months in Ranplan (UK) and 6 months in Orange (France).

In compliance with the training activities envisaged by the Banyan Project, the winner of the selection and beneficiary of the grant of CNR-IEIIT, must compulsorily enroll in the selection competition for the PhD course in electrical, electronic and communications engineering at the Politecnico di Torino. In case of assignment of a position for attending the PhD course, this position must be understood without scholarship. For more information about the doctorate course see:
http://dottorato.polito.it/eet/it/presentazione;
http://dottorato.polito.it/en/doctoral_school

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Contract and benefits (parental leave, vacation days, etc.)

The employment contract will be in accordance with the rules of the European Commission (http://ec.europa.eu/research/mariecurieactions/careers_en.htm).
ESRs will receive a Monthly Living Allowance plus a Mobility Allowance compliant with the applicable EC Marie Skłodowska - Curie Actions – ITN
(https://ec.europa.eu/research/participants/data/ref/h2020/wp/2018-2020/main/h2020-wp1820-msca_en.pdf)

In particular, the overall gross remuneration will include:

- a living allowance of 40.966,56 €/year, that will be paid in monthly installments (3.413,88 €/month);
- a mobility allowance of 7.200,00 €/year (600,00 €/month);
- a family allowance of 500,00 €/month (only in case the winner is married or has a similar legal situation recognized by law, and/or with children under his custody.

The amounts detailed above do not include any remuneration for missions in Italy or abroad that may be necessary for the performance of activities related to the research grant, that will be covered separately by CNR-IEIIT. The grant will cover a cumulative insurance signed by CNR.

1.Eligibility criteria
In order for applicants to be considered eligible, the below mentioned requirements must be met at the time of the call deadline.

Qualifications
Applicants shall have a Master degree or equivalent in Electronic engineering, Computer engineering, Telecommunication engineering, Mathematics, Physics, Computer science or related fields
Foreign language: the candidate shall be fluent in written and spoken English with IELTS o TOEFL certificate (the list of accepted certificates may be found in www.ieiit.cnr.it/it/modulistica; Alternatively, if the candidate obtained a BSc o MSc Master's Degree from a University providing training courses in English language, they can hand in an official declaration issued by the university stating that "The medium of instruction is English");
Possession of a Graduate Record Examinations certificate is also mandatory.

Mobility

The applicants must not have resided in the country where the research training activities will take place (Italy) *for more than 12 months in the 3 years immediately prior to the recruitment date* (i.e., at the signature of the contract), and must not have carried out their main activity (work, studies, etc.) in that country.

Experience

The fellows must have less than 4 years' research experience (Early Stage Researcher) at the signature of the contract (measured from the time the Master's degree has been obtained).
Eligible applicants must not have a PhD.
The CV must be without gaps, in order to easily check the mobility and experience rules. CVs that either do not clearly show the past experiences or have gaps will be considered ineligible.

2. Deadline and procedure for the submission of the application
Deadline for application is **March 08 2021**.

All documents must be submitted exclusively via Certified Electronic Mail (PEC) from a personal account of the candidate at the following address: protocollo.ieiit@pec.cnr.it.

The subject of the email should contain the reference number of the call: Bando IEIIT-002-2021-TO**.**

Exclusively for foreign citizens residing abroad or residing in Italy but not entitled to activate the PEC, and for Italian citizens residing abroad, the application and declarations can be sent by ordinary e-mail to the address: bando.selezione@ieiit.cnr.it. In this case, candidates will be sent a reply email confirming receipt of the application.

A detailed CV in PDF format shall be attached to the application, written in the form of self-certification (in accordance with art. 46 and 47 of Presidential Decree 445/2000 and subsequent amendments) signed by the candidate and bearing, before the handwritten signature, the express annotation about the awareness of the criminal sanctions in which the candidate incurs for false statements. Proof of nationality (copy of passport or identity card, dated and signed) shall also be attached.
In the aforementioned CV, the candidate will indicate personal status, facts and qualities, in particular he must analytically indicate the studies completed, the qualifications obtained (in particular the data relative to the degree, with a detailed list of the exams taken and relative scores for the Master's degree course), the publications and/or patents, the services provided, the roles served, the positions held, and any other scientific, professional and/or didactic, reporting the exact references of each qualification indicated.

The curriculum above must be written in an analytical manner and contain all the elements to make it usable for the purposes of selection, so that the examining commission can usefully evaluate the qualifications to which they refer. All information provided in a way that differs from the methods indicated above cannot be evaluated.

The Administration will carry out appropriate checks on the veracity of the content of the self-declarations pursuant to art. 71 of Presidential Decree 445/2000.

A motivation letter and reference letters may also be attached to the application

3. Evaluation criteria and selection procedure

After assessing the candidates' eligibility, the evaluation procedure will be carried out by a Scientific Evaluation Committee (SEC), reviewing the scientific quality of the applications. The SEC will be composed of three expert members, plus two alternate expert members.

The evaluation will consist of two selection steps: the first based on the documentation provided by the candidates and the second based on the interview.
The SEC will have a total of 100 points available, of which 70 points for the evaluation of qualifications (step 1) and 30 points for the interview (step 2).
The evaluation criteria to be applied in the first selection step will be based on education and previous training, aptitude to carry out an individual project, scientific quality and potential for excellence, impact/benefit of training on candidate's individual research career, reference letters.
The evaluation criteria to be applied in the second selection step will be based on scientific knowledge in the field of interest, research experience in the field of interest, motivation, knowledge of English language and overall vision.

The SEC will then form a ranking of the candidates, in descending order of the final score obtained by each one, based on the sum of the scores achieved in the two steps, considering only overall scores equal to or greater than 60/100, and will indicate the winner. Within the same score, the younger candidate will be preferred.

The candidate interviews will take place remotely on **March 15, 2021 at 9:30am**, through audio and video computer media, according to operating procedures that will be communicated to the candidates in due time.

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4. The official document for the selection is the Italian version of the call available at
https://bandi.urp.cnr.it/assegni/faces/pubblica/RisultatoCercaAssegniPubblica.jsp

5. For any further information contact fabrizio.dabbene@ieiit.cnr.it

*All useful templates for preparing the application, CV and information on the processing of personal data can be downloaded from the web page http://*www.ieiit.cnr.it/it/modulistica

The Director
Ing. Paolo Giuseppe Ravazzani