Position Description

Group of research topics: Automated Monitoring of Online Communities

Position is funded by	- COFUND, Marie Sklodowska-Curie Actions (MSCA), Horizon 2020, European Union - IIIA-CSIC, Spain - RMIT University (RMIT), Australia
Research Host	Research Institute for Artificial Intelligence (IIIA-CSIC), Spain
PhD awarding institution/s	Dual PhD awarded by Autonomous University of Barcelona (UAB), Spain and RMIT
Locations	- Primary: Barcelona, Spain - Secondary: Melbourne, Australia - Annual workshops in Barcelona, Spain
Contract	Full-time, fixed term (36 months)
Gross annual salary	28.330 EUR (gross amount before employee's taxes and contributions)
Preferred start date	01/01/2023
Deadline for applications	19/09/2022 (Reference: IIIA-CSIC-DC2)

Your choice of research topics (only one of these projects will be funded):

Project 1: Graph Neural Networks for language	Project 2: Graph Neural Networks for material sciences	Project 3: Graph Neural Networks for biomedical image segmentation
The overall aim of the research is to analyze the potential contributions of the network structure in the construction of language models. The project will investigate AI techniques to take advantage of the links between documents (for example reference between scientific articles, responses or citations between tweets) as an opportunity to build better text representations.	The overall aim of the research is to contribute to current research in applications of Graph Neural Networks in material sciences research. GNNs are expected to enable an accurate and interpretable prediction of the properties of materials. The idea of the work is to expand the research ideas in [Dai2021].	The overall aim of the research is to contribute to biomedical image segmentation tasks through the use of Graph Neural Networks. The idea of the work is to apply the research ideas developed in [Alon2022] for another biomedical image segmentation tasks. Specific examples will be oocytes and embryos from mammals.
	Dai, M., Demirel, M.F., Liang, Y. et al. Graph neural networks for an accurate and interpretable prediction of the properties of polycrystalline materials. npj Comput Mater 7, 103 (2021). https://doi.org/10.1038/s41524-021-00574-w	Alon, Yoav & Zhou, Huiyu. (2022). Neuroplastic graph attention networks for nuclei segmentation in histopathology images.

Supervisors:
Prof. Jesus Cerquides (IIIA-CSIC) **and** Jeffrey Chan, Azadeh Alavi (RMIT)

Research Fields: Artificial intelligence, Data Science

For more information on the Projects, contact us: redi.help@rmit.edu.au

Are you REDI? (Expected Profile)

Your background and skills: You should have an undergraduate or postgraduate qualification in Computer Science with a research component. Skills in programming, computational logic and artificial intelligence would be ideal.

Your work experience: Professional experience is not required.

Your research experience: You should have a research component in a bachelors or masters level course.

For more information about the general conditions of the REDI Program and the Eligibility Criteria, please visit: https://www.rediprogram.eu/

Employment Benefits and Conditions

IIIA-CSIC offers a 36-month position (extendable to up to 48 months in duly justified cases). The position will be based in Barcelona (Spain). International travel is foreseen to Australia (up to 12 months). There is no probation period and there are 40 working hours per week.

The remuneration, in line with the European Commission rules for Marie Skłodowska-Curie grant holders, will consist of a gross annual salary of est. 28.330 EUR (gross amount before employee's taxes and contributions). Of this amount, the estimated net salary* to be perceived by the Researcher is est. 1.800 EUR per month. However, the definite amount to be received by the Researcher is subject to national tax legislation. For more information on the estimated net salary per month, please use the net salary calculator.

Net salaries can fluctuate in accordance with an individual's personal circumstances (marital status, age, disability, family and dependents, etc. The above indicative net salaries offer an approximation of what a single person in their early 20s could expect to receive in their bank account after taxes.

Benefits include:
- Paid holiday leave
- Sick / injury leave
- Parental leave
- 1,000€ yearly travel allowance to cover flights and accommodation to participate in the annual workshop at RMIT Europe in Barcelona (Spain)
- 10,000€ allowance to cover flights and living expenses for up to 12 months in Australia.

Learn more on RMIT, IIIA-CSIC, and UAB on our website:
http://www.rediprogram.eu/about/#hostinstitutions

PhD enrolment. Successful candidates for this position will be enrolled by the following institutions:

Admission at UAB

You will be enrolled as Doctoral Student at UAB for the entire duration of the assignment. At admission, you will need to supply:

- Degree certificate and the transcript of records of a Bachelor's degree and Master's degree (original and photocopy). Access may be granted where the following cases apply:

- Hold an official Spanish university degree or a degree from another country in the EEES which grants access to a Master's degree in accordance with article 16 of RD 1393/2007, of 29 October, and have achieved a minimum of 300 ECTS credits in university studies of which at least 60 must be at Master's level. In this case we must remember that the official university degree obtained correspondence to Level 2 of the Spanish Qualifications Framework for Higher Education (MECES), for official titles of Graduate or Engineer will be accounted for as a degree of 180 ECTS.
- Hold an official Spanish qualification at graduate level, the duration of which, in accordance with community law, must be at least 300 ECTS credits. These graduates must take compulsory background credit referred to in article 7.2 of RD 99/2011, except where the syllabus of the degree course includes research training credits equivalent to the research credits awarded on Master's courses.
- University graduates who, before obtaining a place as a result of the entrance exam for specialist health courses, have passed at least two years of a programme for an official qualification in one of the Health Science specialisations.
- Holder of a qualification obtained in accordance with foreign educational systems without the need for official recognition, having previously confirmed with the university that this qualification accredits a level of training equivalent to the official Spanish university Master's degree and that it would serve as a means of access to a PhD in the country in which it was awarded. This admission does not under any circumstances imply official recognition of the previous qualification or recognition for any purpose other than access to PhD studies.
- Holders of another Spanish PhD qualification obtained in accordance with the previous university's rules.
- Holders of a degree who also have the Diploma of Advanced Studies obtained in accordance with the provisions of RD 778/1998, of 30 April, or have achieved research proficiency under the terms outlined in RD 185/1985, of 23 January.
- Hold an official university degree which has obtained correspondence to level 3 of the Spanish Qualifications Framework for Higher Education (MECES), for official degrees of Architect, Engineer or Bachelor.

- Cover Letter
- CV including contact details
- 2 reference letters
- At the time of admission, the assignment of tutor, director and line of investigation will be necessary.
- Admission to the PhD programme is decided by the Rector and depends on having passed the bridging courses, where they exist.

For those Candidates who have obtained their qualifications abroad formal requirements are needed to be followed to validate them. For more info, visit: https://www.educacionyfp.gob.es/en/servicios-al-ciudadano/catalogo/general/20/203615/ficha.html

More information: https://www.uab.cat/web/study/phds/admission/admission-new-doctoral-studies-regulated-by-rd-99/2011-1345666996343.html

Admission at RMIT University

You will also be enrolled as Doctoral Student at RMIT University for the entire duration of the assignment. At admission, you will need to supply:

- CV
- Complete transcripts for all academic qualifications
- Research proposal or statement of interest in an available research project
- Language certificates
- List of referees

More information: https://www.rmit.edu.au/research/research-degrees/how-to-apply

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