JOB OFFER

Position in the project:	**Senior post-doctoral researcher**
Scientific discipline:	Psychological sciences/ Neurosciences and Management
Job type (employment contract/stipend):	employment contract
Number of job offers:	1
Remuneration:	12 000 PLN monthly (gross income)
Position starts on:	1 October 2019
Maximum period of contract/ stipend agreement:	3 years
Institution:	Jagiellonian University, Cracow
Project leader:	Jacek Tabor
Project title:	**Bio-inspired artificial neural networks** ***Project is carried out within the TEAM-NET programme of the Foundation for Polish Science***
Project description:	Artificial neural network model was created basing on analogies to biological counterparts, such as a simplified model of the neuron or a system of retinal neurons. Due to the increasing complexity of tasks and problems with the development of effective methods for learning deep neural networks, solutions based on algebraic structures dominate Today, advanced approaches in machine learning such as deep learning shows number of undesirable features, such as forgetfulness, susceptibility to adversarial examples, the requirement for a large training set, and slow learning. Most of these features do not occur in biological systems, thus it

	would be beneficial to take an inspiration from them to help training artificial systems. The aim of the project is to analyze high-level behaviors of biological neural systems and to build innovative artificial models by proposing new paradigms of learning and new architectures of computational models. The Jagiellonian University will run six research groups: Cognitive group, Physics-group, Machine-learning group, Neuro-group, BioDataScience-group, InfoTech-group. **We seek for a senior post-doctoral researcher in Cognitive group** The broad aim of the group would be to acquire the resting state fMRI, neurological, psychological, and behavioral data of 150 patients diagnosed with multiple sclerosis (MS) and 50 healthy controls during two sessions in regard to their psychophysiological state. As a result, data from 400 individual scans of patients in various stages of MS disease will be collected. In particular, the goal is to prepare the data for the further stage of analyzes carried out by other groups acting within project as well as conducting own analyzes allowing to determine the typology of changes in the restructuring of neural networks in patients and healthy subjects during the process of learning. Moreover, the relationship between mental exhaustion and resting state brain activity in MS patients and healthy subjects will be estimated. Additional goal would be to evaluate dynamic network reorganization during performing a task with the use of electroencephalography.
Key responsibilities include:	1. Planning, organizing, conducting, and managing behavioral, psychological and fMRI research with close cooperation with interdisciplinary team (neurologists, psychologists, radiologists, bioinformatics, physics, neurobiologists). 2. Providing the set of behavioral and psychological tests evaluating the effectiveness of neural resting state networks. 3. Behavioral and psychological evaluation of the neural resting state networks deficits and reorganization in MS. 4. Close interaction with MS patients with cognitive and emotional deficits. 5. Operating Siemens Skyra 3 Tesla MRI system. 6. Operating the EyeLink 1000 Plus eye tracker system in Siemens Skyra 3 Tesla MRI scanner. 7. Manuscript preparation. 8. Presentation of scientific data on international conferences.
Profile of	1. Research record, including research projects, especially those in which the candidate was the principal

candidates/requirements:	investigator (minimum 2 projects), and publications (relevance for the call). 2. Experience in fMRI, EEG, actigraphy and eye movements studies including cognitive functions examination, especially attention, memory, decision making and error related processes. 3. Experience in studies on circadian rhythms and sleep deficits in humans. 4. Experience in studies involving patients with cognitive and emotional deficits using functional resonance imaging. 5. Experience in managing and coordinating scientific projects (fMRI study) especially in which applicant has been in position of principal investigator is a must (relevance for the call). 6. Experience in working with interdisciplinary and international teams. 7. Fluency in Polish is a must due to close contact with polish patients with cognitive and emotional deficits. 8. Experience in operating Siemens Skyra 3 Tesla MRI system. 9. Experience in operating eye tracker system EyeLink 1000+ especially in Siemens Skyra 3 Tesla MRI scanner 10. Psychology, cognitive neuroscience, management background and research experience is preferred - confirmed by Master and PhD diplomas, and documents confirmed fMRI research experience (minimum 9 years after PhD awarded).
Required documents:	1. Application 2. Curriculum vitae. 3. Documents proving experience and background (points from 1 to 10 in the profile of candidate). 4. Statement of knowledge and acceptance of intellectual property rules and legal protection. 5. Information about processing of personal data. 6. Personal questionnaire.
We offer:	1. Full time employment from 1 October 2019 till 30 September 2022 (36 months), subject to periodical evaluation. 2. Scientific and organizational support. 3. Work in an interdisciplinary research team.
Please submit the documents to:	wziks.projekty@uj.edu.pl
Application deadline:	30 August 2019 (12 PM CEST)
General rules of the requirement process	1. Candidates can apply at the same time for all positions offered by the project. It must be reported on the application form.

	2. The decision will be taken by the Recruitment Committee established at the Faculty of Management and Social Communication at the Jagiellonian University. 3. The Recruitment Committee reserves the right to invite selected candidates for the interview. 4. The recruitment interview can be carried out during the first week of September 2019. Confirmation will be sent to potential candidates shortly after August 30. 5. The Recruitment Committee reserves the right to close the contest without selecting a candidate. 6. The results of the competition will be announced until 9/09/2019.
For more details about the position please visit	bionn.matinf.uj.edu.pl
Euraxess job/stipend offer (in case of PhD and postdoc positions):	https://euraxess.ec.europa.eu/jobs/432747

Due to the entry into force of Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016, we also require that by applying, a candidate expresses his/her consent to the processing of his/her personal data needed for the recruitment process by the Jagiellonian University.