VALERIA A. DEMAREVA

University	National Research Lobachevsky State University of Nizhny Novgorod
Level of English proficiency	C1
Educational program and field of the educational program for which the applicant will be accepted	5.12. Cognitive Sciences 5.12.1. Interdisciplinary studies of cognitive processes
List of research projects of the potential supervisor (participation/leadership)	1. Development of a neuroheadset for controlling the human condition in the treatment of phobias. No. 316-06-16-62a/21 (grant of the Government of the Nizhny Novgorod region for young scientists to celebrate the 800th anniversary of Nizhny Novgorod, 2021). 2. Psychophysiological mechanisms of reading: universal effects and those dependent on language and level of competence. No. 18-013-01169 (RFBR, 2018-2020). 3. Heart rate-based drowsiness detector. No. 22-28-20509 (RSF, 2022-2023). 4. An online functional state detector for optimising the work and rest regime of human operators. No. 316-06-16-15-15a/22 (grant of the Nizhny Novgorod region in the field of science, technology and engineering, 2022). 5. Development of the Master's programme in Cyberpsychology. No. GC200001117 (grant competition for Master's degree teachers 2019/2020, V.Potanin Foundation, 2019-2020). 6. Workshop on usability evaluation and neuromarketing. No. GK22-000456, grant competition for Master's degree teachers 2022 (V. Potanin Foundation 2022-2023). 7. Smart Sport - development of a prototype kit for condition monitoring (by heart rhythm) during training. No. 316-06-16-112a/23 (Nizhny Novgorod region Government grant for young scientists, 2023).
List of the topics offered for the prospective scientific research	Usability research, neuromarketing and focus groups. Study of markers of emotional and cognitive response to products and advertising elements. Exploring human-operator states. A search for markers of the cognitive state of the human operator. Search for markers of the emotional state of the human operator. Development of systems for monitoring the human operator's state. Search for common markers of optimal and extreme states of a human operator. Study of human states in sports activities. Vocational guidance of children and adults using VR and AR. Development and testing of educational platforms using VR and AR. Gamification of education. Exploring the effectiveness of implementing game-based practices in education. Analysing human-robot interaction using VR and AR. Psycholinguistics and bilingualism. Ecological validity of competency-based tests. Linguistic indicators of foreign language proficiency. Organising and structuring linguistic databases. Research of language acquisition in the classroom-lesson system with the help of different support systems (textbooks, tutors, etc.).

	Research on incidental language learning processes. Research of speech generation and perception. Development of diagnostic tools. Study of reading skills and factors accompanying successful development of a reading skill. Study of the acquisition and mastery of professional vocabulary. Communication in the teacher's work. Academic writing. Gamification in linguistics. New methods of lie detection.
 Research supervisor: Valeria A. Demareva, Candidate of Psychological Sciences (Institute of Psychology Russian Academy of Sciences)	**Education and psychology** **Supervisor's research interests** Study of optimal and extreme human states in different situations: driving, buying goods, training, etc. Study of the human condition by objective methods such as i-tracking, electroencephalography, heart rate variability, cutaneous galvanic response.
	Research highlights The postgraduate student's work will be carried out (depending on the topic chosen) using: • eye tracker goggles to record eye movements during free human behaviour, • wireless heart rate sensors to record the state of the body during different activities, • sensors for polygraphy to record multiple physiological signals simultaneously, • a car simulator with an augmented reality helmet, • a special room with a Gesell mirror and cameras/dictaphones to monitor focus groups, • a soundproof booth for recording stimuli/speech, • a stationary encephalograph to record brain rhythms under different conditions, • a neuroheadset for mobile EEG recording and brain training under different scenarios, • a lie detector, • a virtual reality helmet.
	Supervisor's specific requirements • *knowledge of basic methods of psychophysiology,* • *skills of working with statistical packages,* • *ability to work in R, Python,* • *good command of English/French.*
	Supervisor's main publications 1. *Demareva, V.; Zayceva, I.; Viakhireva, V.; Zhukova, M.; Selezneva, E.; Tikhomirova, E. Home-Based Dynamics of Sleepiness-Related Conditions Starting at Biological Evening and Later (Beyond Working). Int. J. Environ. Res. Public Health*

	2023, 20, 6641. 2. *Radchenko G, Demareva V, Gromov K, Zayceva I, Rulev A, Zhukova M and Demarev A (2023) Neural mechanisms of temporal and rhythmic structure processing in non-musicians. Front. Neurosci. 17:1124038. doi: 10.3389/fnins.2023.1124038* 3. *Demareva, V. Functional Hemispheric Activity and Asymmetry Markers of Effective Foreign Language Performance in 3rd-Grade, 10th-Grade, and University Students. Symmetry 2022, 14, 1659.* 4. *Demareva V.A., Mukhina E.A., Bobro T., Abitov I. Does Double Biofeedback Affect Functional Hemispheric Asymmetry and Activity? A Pilot Study // Symmetry. V. 6. № 13. 2021. P. 937.* 5. *Demareva V.A., Edeleva Y.A. (2020) Eye-Tracking Based L2 Detection: Universal and Specific Eye Movement Patterns in L1 and L2 Reading. Procedia Computer Science. 2020. V. 169. P. 673-676.*
	Results of intellectual activity 1. SYSTEM AND METHOD FOR DETERMINING AN EYE MOVEMENT. Demareva V.A., Filimonov A.V., Filatova A.S., Shishalov I.S., Burashnikov E.P., Devyatkin A.S., Sotnikov M.S. № EP 3 989 045 A1, application 27.04.2022. 2. SYSTEM AND METHOD FOR DETERMINING AN EYE MOVEMENT. Demareva V.A., Filimonov A.V., Filatova A.S., Shishalov I.S., Shishanov S.V., Burashnikov E.P., Devyatkin A.S., Sotnikov M.S. № US 2022/0117529 A1, application 21.04.2022. 3. System and method for determining cognitive demand. Demareva V.A., Filimonov A.V., Filatova A.S., Burashnikov E.P., Shishanov S.V., Shishalov I.S., Devyatkin A.S., Sotnikov M.S., Burova A.S., Kilyazov V.V., Bakhchina A.V. № WO2022055383A1, application 17.03.2022. 4. Быков Ю.В., Демарева В.А., Плесовских К.Ю. СПОСОБ УПРАВЛЕНИЯ ВНИМАНИЕМ В ИГРОВОМ ПРОЦЕССЕ. Патент на изобретение RU 2674191 C1, 05.12.2018. Заявка № 2017140169 от 20.11.2017. 5. Полевая С.А., Демарева В.А. СПОСОБ ОПРЕДЕЛЕНИЯ ЯЗЫКОВОЙ И ПРОФЕССИОНАЛЬНОЙ КОМПЕТЕНЦИЙ. Патент на изобретение RU 2594102 C1, 10.08.2016. Заявка № 2015140171/14 от 21.09.2015.