europass

Nargiza Kozhanova

Nationality: Kazakhstani **Date of birth:** 07/01/2000

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WORK EXPERIENCE

University research assistant

Laboratory of Brain and Behavioral Sciences [01/03/2024 – 30/11/2024]

City: PAVIA | **Country:** Italy

- Conducted statistical analysis on seven MRI metrics from 54 COVID-19 patients, providing quantitative insights into the neurological impact of the virus using linear regression across multiple regions of interest (ROIs).
- Reviewed over 20 peer-reviewed articles, identifying and defining 30 key brain ROIs linked to fatigue in Long COVID, and synthesized findings for scientific research presentations and academic writing.
- Pre-processed 378 MRI images and conducted voxel-based analysis by merging images in MNI space, enhancing data accuracy and reproducibility for neuroimaging research.
- Leveraged Matlab, RStudio, and Linux (Ubuntu) for data analysis and Neuroimaging tools like Fsleyes, Fslview, and SPM, showcasing strong proficiency in specialized software for complex data handling and imaging.
- Applied linear regression to 30 ROIs across seven MRI metrics, presenting findings in a structured and statistically sound manner, and delivering insights through academic presentations and detailed scientific reports.

University research assistant

Laboratory of Histology and Cytology in the University of Pavia [15/10/2023 – 15/02/2024]

City: PAVIA | **Country:** Italy

- Advanced osteogenesis imperfecta research by analyzing brain tissue from wild-type and OI mice, contributing valuable insights on neurological effects within a genetics disease framework
- Achieved precise brain sectioning through both automatic and manual microtome techniques, ensuring high-quality samples essential for immunohistochemistry studies
- Selected intact brain slices and conducted immunostaining with DAB, AP, antibodies, and hematoxylin, producing reproducible data that supports genetic disorder research application.
- Conducted a comprehensive literature review on osteogenesis imperfecta's impact on brain microstructure, providing foundational knowledge for ongoing genetic disease research.
- Completed Laboratory Safety Training to uphold safety protocols, ensuring adherence to Good Laboratory Practices in high-stakes research environments.
- Ensured the well-being of 40 lab mice by maintaining animal care standards, supporting the ethical and accurate collection of data.

University research assistant

CoronaNet Research Project [01/08/2021 – 01/05/2022]

City: Astana | **Country:** Kazakhstan

- Coded, collected and cleaned 70 policies about restrictions and lockdown about COVID-19 epidemiology in Arkhangelskaya region of Russia.
- Integrated 70 more policies of COVID-19 regulations in Moscow region.
- Contributed to the largest dataset of policy responses and to the winning of the Deutsche Stifterverband Open Data Impact Award.
- Progressed in team work, met weekly assignments and wrote regional reports weekly.

Biotechnology researcher

National Center of Biotechnology [01/01/2021 – 01/04/2021]

City: Astana | **Country:** Kazakhstan

- Did a literature review about Covid testing using CRISPR-Cas 12 system.
- Performed Column chromatography for protein purification.
- Performed Gel electrophoresis, Western Blot, PCR.
- Transfected plasmid into E.coli.
- Collected data for further analysis.

Medical Laboratory technician

Medical Center "Dostarmed" [01/06/2020 – 01/08/2020]

City: Almaty | **Country:** Kazakhstan

- Collected biological samples from patients for Covid tests.
- Recorded personal information about patients.
- Worked with clients.

EDUCATION AND TRAINING

Master of Science in Neurobiology

University of Pavia [01/10/2022 – 19/12/2024]

City: PAVIA | **Country:** Italy | **Website:** https://neurobiologia.cdl.unipv.it/en | **Field(s) of study:** Natural sciences, mathematics and statistics | **Final grade:** 103/110 | **Thesis:** "Assessment of the relation between fatigue and cognitive performance with microstructural and susceptibility metrics in Long COVID"

Bachelors of Science in Biology

Nazarbayev University [01/08/2018 – 01/06/2022]

City: Astana | **Country:** Kazakhstan | **Website:** https://nu.edu.kz/academics/program/bsc-in-biological-sciences

LANGUAGE SKILLS

Mother tongue(s): Kazakh | Russian

Other language(s):

English

LISTENING C2 **READING** C2 **WRITING** C2

SPOKEN PRODUCTION C2 **SPOKEN INTERACTION** C2

Italian

LISTENING A2 **READING** A2 **WRITING** A2

SPOKEN PRODUCTION A2 **SPOKEN INTERACTION** A2

French

LISTENING A2 **READING** A2 **WRITING** A1

SPOKEN PRODUCTION A1 **SPOKEN INTERACTION** A2

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user

DIGITAL SKILLS

Microsoft office skills

Microsoft Office / Microsoft Office (Word , Excel and Power Point) / Microsoft Word

Google tools

Google (Google Meet, Google Docs, Google Classrom, Google Forms, Google Drive, Google Slide);

Coding

Experience in MATLAB, python, and R

Organization and planning skills

Skype / Zoom / Social Media

Dear VoCS Selection Committee,

I am excited to apply for a PhD position within the VoCS Doctoral Network, where I can integrate my expertise in neuroimaging, statistical modeling, and biomedical research into the study of voice perception and production. With a Master's degree in Neurobiology and hands-on experience in MRI data analysis, voxel-based morphometry (VBM), and cross-disciplinary neuroscience, I am eager to contribute to VoCS's mission to bridge neuroscience, AI, and speech processing. My career goal is to advance voice-based diagnostics and assistive technologies, which aligns with VoCS's focus on real-world applications, and my technical proficiency in neuroimaging tools (SPM, Fsleyes, Matlab, RStudio) positions me to excel in this program.

I am interested in the project about "Perception and Production of Distorted Voice and Speech in Parkinson's Disease", because this project's focus on computational modeling of disease progression links with my thesis work on associating fatigue to brain microstructural changes. Moreover, I have a specific interest in neurodegenerative disorders, since it is prevalent in Kazakhstan and is present in my close surrounding relatives. My experience with multicenter data harmonization, such as merging MRI images in MNI space can ensure my ability to contribute to collaborative research. Throughout my work as a University Research Assistant at the Laboratory of Brain and Behavioral Sciences I improved my skills in pre-processing of MRI images using Voxel-based morphometry and linear regression across 30 brain regions of interest to study Long COVID related neurological changes. My experience at using Matlab, Rstudio to build pipelines for image processing also can help me to further analyze voice distortions in Parkinson's disease. Even if I didn't have hands-on experience with EEG, I have studied about this technique during Master's courses such as Neurobiology and Electrophysiology and I am willing to advance my knowledge and practice this approach.

Since the VoCS program allows me to express interest in multiple projects, I would also like to highlight my enthusiasm for two additional PhD topics:

1. Project about "Giving Personality to Synthetic Voices" brought my deepest attention.This project immediately captured my interest due to its integration of neuroscience and AI-driven voice synthesis. My solid background in computational

neuroscience and MRI analysis equips me to investigate how cerebral responses encode personality traits in AI voices. The secondments at Oxford Wave Research and Japan's National Institute of Informatics align with my goal to transition into industry-driven research. My adaptability honed during three years in Italy's international academic environment ensures that I will thrive in this multicultural project.

2. Project about "Attention to Vocal identity cues" raises my interest due to its focus on auditory attention mechanisms, which I would explore through ROI based statistical modeling and MRI data analysis. I have already collaborated with international teams during my Master's degree which will help me to better fit into this highly interdisciplinary research. Although I do not have prior experience with software in voice communication science such as PRAAT and STRAIGHT, I am willing to learn and apply these tools proactively to better align with program requirements and contribute effectively to the project.

VoCS's emphasis on industry partnerships and applied research resonates with my professional future goals. My experience in translational neuroscience from analyzing COVID-19 policies to studying genetic disorders in mice has instilled a pragmatic, solution-oriented mindset. I am particularly eager to engage with VoCS's training in AI-driven speech synthesis to expand my skills in PRAAT and deep learning frameworks to bridge neuroimaging and voice technology. As a trilingual speaker (Kazakh, Russian, English) with C2 English proficiency, I am well-prepared to collaborate across VoCS's international network. If the program requires me to advance in local languages, I will be glad to enroll in language courses to be able to socialize and adapt in the environment.

Thank you for considering my application. I would welcome the opportunity to discuss how my background in neuroimaging, computational modeling, and cross-disciplinary research can advance VoCS's innovative projects.

Best regards,
Nargiza Kozhanova

Email: nargiza.kozhanova01@universitadipavia.it

Please feel free to contact my two referees, they will provide with reference letters:

1. Professor Fulvia Palesi: fulvia.palesi@unipv.it
2. Dr. Elena Grosso: elena.grosso01@universitadipavia.it