PhD student position in spaceflight induced sensorimotor adaptations (f/m)

Last application date: **Aug 15, 2019**
Contract: **Limited duration (4 year)**
Occupancy rate: **100%**
Start date: **September 1, 2019**

Description:
The Lab for Equilibrium Investigations and Aerospace (LEIA) at the University of Antwerp has an open position for a PhD student to analyze eye data obtained from astronauts before and after their flight to the International Space Station (ISS). This multidisciplinary project will be supervised by prof Floris Wuyts, Principal Investigator of the ESA BRAIN-DTI project which constitutes the framework of this PhD topic.

The aim of the project is to analyze eye movement recordings obtained during centrifugation tests, performed in Star City near Moscow in cosmonauts that stayed 6 months in the ISS. Two to three months before departure to the ISS and the 3rd and 9th day after return back to Earth, data of eye movements are obtained with video goggles and recorded for further analysis. It is an ongoing project and a considerable amount of the data have already been collected within the ESA BRAIN-DTI project in collaboration with colleagues from the Institute of Biomedical Problems (IBMP) in Moscow (Ru). During the 4 years of the PhD, more data will be collected and an overall analysis of all data collected, including in the previous part, will be done.

Research group

In the Lab for Equilibrium Investigations and Aerospace (LEIA) which is a continuation of the former group AUREA several topics are treated, but spaceflight and equilibrium have been main topics for the past two decades. Our results on the effect of microgravity on the brain of astronauts can be considered as forefront research, as well as the study of the vestibular system in astronauts.

The working environment is strongly interdisciplinary, and it is essential to combine neuroscience knowledge with engineering and physics skills to optimize the analysis pipeline. The group has a broad range of national and international collaborations. Recent publications can be found by searching on F.L. Wuyts on pubmed or Web of Science.

Requirements

- Degree: You have a M.Sc. degree in the biomedical engineering, computing science, physics, engineering or equivalent. It is of great advantage to have a background in Neuroscience as well as computer engineering in order to analyze the images and optimize 3D analysis of eye movements as well as to interpret the data physiologically. Thus, you have clearly a special interest in neuroscience on one hand and you are dedicated to image analysis. Candidates

with a Medical degree and a strong interest in engineering and excellent engineering skills are also encouraged to apply.
- Knowledge of image analysis packages and scientific software (mathlab, labview NI)
- Ability to work independently as well as in team
- Willing to travel abroad to collaborate with international partners and to participate in international conferences
- Highly motivated and driven to explore research questions in depth
- Excellent oral and written proficiency in English

You love interdisciplinary science, and want to advance the field of space physiology and study further the impact of microgravity on the human vestibular system. Hereto you will use your skills and creativity. You like to dig into the complexity of the vestibular system and eye movement analysis to get an overview of the otolith system and how it is affected by spaceflight. You also want to tell the world about your findings with sparkling presentations.

Our offer:
- An exciting research trajectory towards a PhD in the field of human space flight and neuroscience
- Direct contact with space research by means of e.g. the tests that are to be done in the astronauts
- Applied research with direct impact on specific patient pathologies.
- Multidisciplinary research: cooperation with strong academic research groups.
- A unique opportunity to study the brain in astronauts.

Applications:
Interested candidates are invited to send a motivation letter, a detailed CV (including followed courses, honours, grades, previous work, programming skills, publications, …) and contact info of two references to Floris.Wuyts@uantwerpen.be with subject BRAIN_DTI_GAZE_SPIN_PHD.