

POST-DOCTORAL position - Detection of neurovisual disorders on a driving simulator

Job description

General description

A 10-month post-doctoral position is available at the University of Versailles Saint-Quentin (UVSQ) in the LISV laboratory (www.lisv.uvsq.fr) headed by Professor Eric Monacelli. The post is part of the APTICONDUITE research project, which is part of the 'Interactive Robotics' research team.

Project description

The APTICONDUITE project aims to develop a new methodology integrated into a driving simulator for assessing neurovisual disorders of drivers in handicap situation.

This project combines a new multimodal experimental approach with advanced statistical modelling to provide a new theoretical and practical angle for studying neurovisual diseases in the field of adaptive driving.

In this context, the post-doctoral student will initially contribute to analyzing data from a network of physiological sensors on board a driving simulator. He/she will have to retrieve relevant information to characterize the driving performance of a specific population (stroke, cognitive disorders, etc.).

The second stage will involve developing a new methodology for the early detection of neurovisual disorders using artificial intelligence algorithms, in order to improve current clinical assessments.

The data set will include images, electrical signals and indicators such as heart rate, breathing rate, etc...

Major responsibilities

- To use artificial intelligence techniques for the advanced exploration and analysis of data collected from biometric sensors (eye tracker, ECG, EMG, breathing, etc.) on a driving simulator, and to develop predictive models to assess the impact of visual disorders on road safety.
- Designing, developing and implementing specific assessment protocols for evaluating visual disorders in drivers on driving simulators, incorporating artificial intelligence methods.
- Collaborate with clinicians, ophthalmologists and vision experts to integrate objective measurements of visual disorders into the driving context, using machine learning algorithms.
- Contribute to the writing of scientific articles and the presentation of results at national and international conferences.
- Actively participate in research team discussions and meetings, working closely with other researchers and students.

Qualifications

We are looking for a PhD with experience in cognitive science and data processing:

- PhD: the candidate could hold a PhD in psychology, neuroscience, biomedical engineering or a related data scientist field.

With:

- Advanced skills in data analysis and the use of statistical software.
- Practical experience with artificial intelligence methods, including the use of machine learning algorithms to analyze complex data.
- Knowledge of visual disorders and their implications for driving would be appreciated.

Context of work

The candidate will be placed under the responsibility of Eric Monacelli and Olivier Rabreau, the project's scientific managers.

He or she will be joining a dynamic and expanding team of researchers in the LISV laboratory at the University of Versailles Saint-Quentin (www.lisv.uvsq.fr). The laboratory is a member of the University of Paris-Saclay. The work will be carried out in the "Interactive Robotics" team coordinated by Prof. Abderraouf Benali, which explores the interaction between users and robotic systems within their environment.

The study is part of the "APTICONDUITE" research project funded by the French Road Safety Delegation (DSR). This project is in collaboration with the national center of expertise on mobility aids, CEREMH (www.ceremh.org) and the Plaisir hospital (www.ch-plaisir.fr).

Contract terms

Duration of contract: 10 month

Job location: Laboratoire LISV, 10-12 avenue de l'Europe, 78140 Vélizy (France)

Salary: 3036.81€ gross per month

Starting date (to discuss): 1st December 2024

Application procedure

Applicants should submit a CV including complete list of publications and a cover letter to:

eric.monacelli@uvsq.fr et olivier.rabreau@uvsq.fr

Bibliography

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