Mohaddeseh Mozaffari

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Professors Fateh Chebana and Sophie Duchesne
Centre Eau Terre Environnement
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Dear Professors Chebana and Duchesne,

I am writing to express my interest in the doctoral project titled "Forecasting drinking water demand using data science" listed on the INRS website. With a robust background in Statistical Physics and Complex Systems, coupled with hands-on experience in data analysis and computational physics, I am excited about the opportunity to contribute to your research team.

Currently, I am pursuing my Master of Science at Shahid Beheshti University, focusing on fMRI data analysis using Topological Data Analysis (TDA). This project, under the supervision of Prof. G. Reza Jafari, involves studying brain connectivity patterns and analyzing cerebral activity differences between individuals with Autism Spectrum Disorder (ASD) and neurotypical cohorts. My role includes applying TDA techniques, utilizing age-stratified methods, and examining neurodevelopmental trajectories across various age groups. Alongside this, I am part of a team at Shahid Rajaei Heart Hospital working on the automatic classification and segmentation of coronary artery diseases using X-ray angiography. This ongoing project has enhanced my skills in medical data analysis, DICOM file processing, and developing custom augmentation techniques, while fostering a collaborative research environment.

My experience extends beyond data science into artificial intelligence, particularly in developing machine learning models for classification and segmentation tasks. I have a strong foundation in Python, C++, and Git, and I am adept at using tools that facilitate collaborative research. Additionally, I have been teaching Python, focusing on object-oriented programming, machine learning, and AI, which has enhanced my ability to explain complex ideas clearly and effectively.

This position's focus on forecasting potable water demand using data science techniques is particularly compelling to me. I am passionate about applying my skills to solve problems, especially those related to medical or environmental issues. The opportunity to work on ensuring sustainable water resources is inspiring. Also, the collaborative and interdisciplinary research environment at INRS is another aspect that excites me about this position.

Thank you for considering my application. I look forward to the opportunity to discuss how my academic background, skills, and enthusiasm can contribute to your team in further detail.

Sincerely,
Mohaddeseh Mozaffari