YUVRAJ ADAGALE

9 Woodlands Drive 72, 738093 Singapore (Singapore)

yuvvraaj0flying@gmail.com | (+65) 84698214 | Whatsapp Messenger: 84698214

To: Dr. Anne van Loon
Vrije Universiteit Amsterdam (VU Amsterdam)
Amsterdam, Netherlands

Subject: Application for the position of Postdoctoral / junior researcher Exploring storylines of drought-flood events (f/m/x)

Dear Dr. Anne van Loon,

I am writing to express my enthusiasm for the research scholar position within the PerfectSTORM project. My background as a GIS Full Stack Developer, Master's degree in Geoinformatics and nearly a decade of experience in GIS development, I believe my background aligns exceptionally well with the requirements of this role.

Professional Journey: Blending Development with Research
Throughout my career, I have been driven by a persistent pursuit of research in the field of development. This journey began during my master's program where I discovered a strong inclination towards research. This inclination has remained a guiding force for me, enabling me to incorporate a research-oriented approach into my development roles. The combination of research and development has not only distinguished my career path but also accelerated my professional growth.

Master's Research Projects
During my master's program, I undertook significant research projects that laid the foundation for my expertise in GIS and environmental science:

1. **Net Primary Productivity Estimation using CASA-NASA model and MODIS data for Jharkhand State**: This project represented a significant endeavor in ecological modeling and remote sensing. I utilized the CASA (Carnegie Ames Stanford Approach) model, a sophisticated ecosystem model, to estimate Net Primary Productivity (NPP) in Jharkhand State. This involved processing and analyzing MODIS satellite data to assess vegetation health and productivity. My work included customizing the CASA model to suit the unique ecological characteristics of the region, ensuring accurate and region-specific NPP estimations. The project's success was marked by a rigorous validation process, comparing our results with NASA's NPP data, thereby demonstrating the model's reliability and my proficiency in handling and interpreting complex environmental datasets.
2. **Morphometric and Land Suitability Analysis of Mhalungi River Basin**: In this advanced project, I employed a comprehensive approach combining GIS and remote sensing techniques to conduct a detailed morphometric analysis of the Mhalungi River Basin. This involved analyzing the basin's topography, drainage patterns, and geomorphology to assess land suitability. I utilized statistical modeling to predict site suitability for various applications, including agriculture and conservation. The project also included developing strategic recommendations for environmental management and sustainable development of the river basin, showcasing my ability to integrate scientific research with practical environmental solutions

Relevant Experience: National Level GIS Projects
In my work on national-level GIS projects in India, I focused on the estimation of Net Primary Production (NPP) using field data, ArcGIS, Python, and QGIS. This involved complex spatial data analysis and modeling, requiring a deep understanding of ecological systems and proficiency in leveraging GIS technologies to derive actionable insights. My work contributed significantly to environmental management and policy-making by providing accurate and comprehensive data on carbon dynamics.

Innovation and Technical Expertise
My innovative endeavors include the development of U-NET segmentation for automatic feature segmentation, where I applied deep learning techniques to enhance the accuracy and efficiency of feature extraction from satellite imagery. Additionally, I engineered a geo-rectification algorithm for raster images using GDAL, C++, and Python, which significantly improved visualization accuracy and processing speed, demonstrating my ability to solve complex spatial data challenges.

Web Development and Automation Skills
In the realm of web development, I successfully merged 3D visualization from Cyclomedia Streetsmart API with 2D mapping from ArcGIS JS API 4. This project not only enhanced surveying efficiency but also provided a more intuitive and interactive user experience. Furthermore, my development of a Python script for optimizing Map Services publishing on ArcGIS Servers streamlined operations, reducing publishing time by 70% and ensuring high reliability and performance of GIS services.

Alignment with Position Requirements

1. **Educational Background**: My Master's degree in Geoinformatics has provided me with a comprehensive understanding of geography, earth, and environmental science, along with a strong foundation in data visualization and creative methods.
2. **Data Visualization Expertise**: Throughout my career, I have specialized in data visualization, employing both GIS and programming skills to transform complex data sets into accessible and insightful visual representations.
3. **Programming and GIS Skills**: My proficiency in Python and extensive experience with GIS platforms have been central to my professional achievements, aligning perfectly with the project's technical requirements.
4. **Website Development Experience**: I have developed web applications that integrate 3D and 2D mapping technologies, showcasing my ability in website development and content editing.
5. **Creative Methods in Data Communication**: My innovative approach to data visualization, blending art and science, is evident in my projects, such as the application of U-NET segmentation for satellite imagery analysis.
6. **Collaboration and Communication Skills**: Working with multidisciplinary teams and international partners has been a hallmark of my career, enhancing my collaboration and communication skills.

Yours sincerely
Yuvraj Adagale