Career opportunity

Be the Data Science Lead in an innovative energy tech project.

HYDRO | OPERATION GREAT LAKES

Data Science Lead

About the company: HOGL

Hydro Operations Great Lakes (HOGL) is a Rwandan company incorporated in 2016 in Kigali. The company has a recognized expertise in hydropower and is developing expertise in mini-grid management. With more than 20 employees, the company has an established core business in Operation and Maintenance (O&M) of hydropower plants and is expanding into the development of digital tools to support energy access projects in the region and beyond.

The HPPBot is a digital assistant for O&M of hydro power plants (HPPs) and is unique to the market. The project has attained competitive grant funding after being selected as one of the six start-up winners of [the AFD's Digital Energy Challenge 2021](). To develop this project, HOGL is hiring for two new roles – a Data Science Lead and a Network and Electronics Engineer.

These two positions will be based in the same office at Kigali, will work together under the responsibility of the HPPBot project manager. The successful applicants will be trained by two international experts, the Managing Director of HOGL and an external expert in electro-mechanics. The successful applicants will also benefit from working closely with the highly experienced technicians and operators within HOGL's team.

About the first project: HPPBot

The HPPBot is a 4.0 assistant for the hydropower industry. The HPPBot organizes big data using connected sensors onsite, data introduced by operators on HMI and data provided by the User Interface for the electromechanical equipment of the plant. The data will be treated and analyzed against hydraulic theory to create predictive models of efficiency and production of the plant. The assistance and prediction given by the model helps the operators to optimize the production of the asset. The system will also have a remote dashboard interface with relevant information for the owners – financial, HR - and monthly reporting suggested enhancements the effectiveness of the plant and the potential gain of the optimizations. Once the core infrastructure is in place, HPPBot can be customized with add-ons, for example, using the hardware to provide predictive maintenance and smart management of the personnel on site. Predictions based on the water forecast applied to deep learning models are also in the project pipeline.

The tool will help to increase electricity production per plant - we are targeting an average improvement of 3%. If the HPPBot is installed in all existing hydropower plants existing in Rwanda currently, it would represent a a production improvement for the country that would provide enough electricity for 55,000 homes, whilst avoiding burning almost 2 million of litres of fuel, which would have emitted about 5 000 tonnes of CO_2. The HPPBot can be deployed across Africa, and the impact can be impressive not just in increased electricity access, but also in reduced dependency of fossil fuels.

Data Science Lead

Location: Kigali, Rwanda.
Contract: Full-time employee with 3 month probation and additional benefits.
Language: English.
Expected start date: March 2022, depending on availability.
How to apply: Submit all requested information via the online form.

About the role

The DS Lead will have the opportunity to engage in custom deep modelling to apply quite advanced fluid dynamics, representing a rare challenge through which to develop their technical analytics skills.

This role is the first of the department and the successful candidate will have the opportunity to lead their own team, and manage their work flows as HOGL grows it's portfolio. The DS Lead can enjoy high levels of professional responsibility and growth, with the added benefit of working on truly impactful tech projects within the region. The DS Lead is:

- Responsible for the design, creation, maintenance and improvements an analytical model to correctly calculate the potential energy of the water in a hydro plant based on the operational conditions and characteristics of the water;

- Responsible for the design, creation, maintenance and improvements of a centralized, normalized, absolutely continuous database of quantitative and qualitative outputs from the HPPBot in use, for each site it is in use for;

- Responsible for the design and implementation of the operational process handbook for the data warehouse;

- Accountable for the design and improvements and responsible for the creation and maintenance of the browser based remote dashboard.

An ideal candidate:

- Has a strong university degree (BSc or MSc) relating to Computer Science, Data, Machine Learning, or Statistics;

- Strong experience in working with big data, finding relationships between multiple variables; Excellent competence in shaping big data sets;

- Competent in applied mathematics; able to absorb complex equations quickly; is amazing at solving difficult, interesting and complex problems;

- Is very comfortable using Python has experience programming in MATLAB and/or R;

- Able to design and manage a real time online dashboard;

- Is comfortable with Agile development/ build sprints;

- Interested in managing a machine learning development (future scope);

- Innovative and resilient, kind, teachable and committed; Affinity for working with people.

Data Science Lead

What we offer as standard

- Onboarding Training; The successful candidate will receive an intensive training from the Managing Director, Bernard Lacroix on the mathematical theory of power and flow in hydropower plants, with regular support thereafter. In this training, you and Bernard will work to confirm the final iteration of the software architecture, and begin to write the laws of the HPPBot;

- Onsite workshops at online hydro plant(s) to introduce the first principles of optimum functional operations and maintenance;

- HOGL provides work conditions aligned with Rwandan labour code, which includes full access to RSSB health insurance, 18 days holiday, secure wage and paid sick and maternity leave as standard;

- Space to bring creativity and innovation to the job specification, to really make the work your own;

- Possibility of flexible working arrangements and a commitment to wellbeing and happiness of the team;

- We are an international team, with diverse skill sets and backgrounds. We do not discriminate on race, gender, ethnicity, disability or any other bias factor;

- We work to an exceptional standard, and will always provide support to the successful applicants in maintaining this standard;

- Once HPPBot is built, it should operate semi-autonomously. HOGL has an interesting catalogue of pending development projects, spanning energy access, finance management in remote areas, and electricity metering that the successful applicant will be expected to work on. This space is also for you – if you have a project in mind, you can see HOGL as a willing project partner.

How to apply for the opportunity

The deadline for applications is **14:00 on the 8th of February 2022**. Any applications submitted after this time will not be considered but may be saved for other positions.

Please visit our website www.hogl.rw to access the application form or directly follow this link.