



LA FONDATION

**14-34 avenue Jean Jaurès  
75019 PARIS**

**Paris, October 10th 2022**

The MSF Foundation is a specialised entity created by Médecins Sans Frontières (MSF) dedicated to medical innovation targeting patients living in contexts with limited resources. Ongoing projects relate, among other things, to the use of 3D printing to create personalised prostheses; the development of digital tools for epidemic control and surveillance; and the development of a smartphone application using Machine Learning to streamline and automate Antibiotic Susceptibility Testing: **Antibiogo**.

The Antibiogo project will contribute to the fight against antibiotic resistance, a major public health concern that is expected to cause 10 million deaths per year by 2050.

Antibiogo is a free, open source, offline Android app, designed for laboratories in Low and Middle Income Countries (LMIC). It supports non-expert laboratory technicians in measuring and interpreting antimicrobial susceptibility tests (AST or Antibiogram), in order to help doctors prescribe appropriate antibiotics to their patients and to provide accurate results that can be used for surveillance purposes.

Winner of the 2019 Google AI Impact Challenge, the application's development started with the help of Google's benevolents.

A first version of Antibiogo that was clinically evaluated across three different sites and countries (Jordan, Mali & Senegal) has been CE-marked since May 2022 as a medical mobile device application used for the interpretation of antibiograms in resource-limited settings and is now being deployed within MSF laboratories.

In parallel, a second version of the app integrating additional features is under development and must be evaluated as well in terms of usability and clinical performances. The results of the studies will be used to obtain CE-marking for this second version of Antibiogo according to the new In-Vitro Diagnostic Medical Devices Regulation (EU).

In this framework, we are looking for a **Backend developer (Typescript)** to join the Antibiogo team on the development of new features and open-sourcing of the Expert System (ES):

Core of the system with the image processing (Ip), the ES is responsible for the antibiograms' interpretation from the picture taken by the laboratory technician. Developed in Typescript, the ES is composed of an engine and different knowledge bases.

We mainly work on the following technologies: Kotlin, C++, Python, Javascript frameworks (Vue.JS), TypeScript, Google Cloud Platform (GCP), Firebase (Firestore, Storage, Crashlytics...), Git.

## **Backend Developer - Typescript (Freelance)**

### **Activities**

Under the responsibility of the Lead Engineer of The MSF Foundation, and in collaboration with the rest of our team, you will be in charge of providing expertise and technical contributions to the expert system integrated into the mobile app.

Your main duties will be to :

- Work with the clinical team to translate needs to solutions
- Implement new features in the expert system
- Work on tools to automate data validation and data migration
- Maintain and improve code quality with clean code, tests, CI/CD
- Deploy the API with GCP and Firebase
- Prepare the expert system for open-sourcing (Github) with refactoring tasks
- Help with the scripting tools used for the mobile app
- Contribute to the technical documentation of the expert system
- Participate in regular meetings organised with the Antibio project team

## Profile

### Experience:

- You have 5+ years of experience as a Backend Developer
- You have a comprehensive experience in backend development with Typescript, GCP and Firebase services
- You are comfortable writing and maintaining Python scripts with basic functionalities (file parsing, csv import/export)
- You are comfortable with good development practices such as testing, code reviews, continuous integration, clean code, version management.

### Languages:

- Fluent French and English written.

### Skills:

- Strong writing and communication for documentation and multidisciplinary teamwork
- Having knowledge and interest in the following topics is a plus (not mandatory): medical devices, humanitarian innovation, limited resource settings.

**Start date:** From now to november 2022

### Conditions:

- Full time contract as a freelance
- Location: Paris or remote
- Duration: 6 months (renewable)

Please send your application (CV and a short introduction) to the following address :  
[vanessa.lalouelle@paris.msf.org](mailto:vanessa.lalouelle@paris.msf.org)

*Applications are reviewed on an ongoing basis.*

*We may stop the selection process if a candidate matches the profile we are looking for.*