Backend Python web developer

The Mosquito Alert team is a leader in citizen science, dedicated to the research and control of disease-transmitting mosquitoes. By bringing together citizens, scientists, public health professionals, and environmental managers, we tackle vectors of diseases like Zika, Dengue, and Chikungunya. Guided by the principle of "science for social good," our project is based in Blanes, with additional hubs in Barcelona and strong support from public institutions and universities worldwide.

We are entering an exciting phase of growth and evolution, striving to expand globally and assist regions most affected by vector-borne diseases. To achieve this, we are overhauling our internal systems to ensure they are generic, scalable, and adaptable to diverse contexts. Simultaneously, we are reimagining how we connect with users, identifying new opportunities, and launching pilot projects to explore innovative services.

Our platform goes beyond a mobile app for reporting mosquito-related information. It includes a sophisticated backend system that processes and distributes data through standardized APIs. We are advancing towards real-time functionality by automating processes and integrating machine learning models using asynchronous workers, driving efficiency and improving outcomes.

As one of the largest citizen science databases for mosquito ecological data, our vision is to become a global hub for public mosquito-related information. By providing open access to this data, we aim to empower communities worldwide, foster collaboration, and deliver impactful solutions democratically and transparently.

We seek an experienced **Backend Python Web Developer** (4–6 years) to join our team and contribute to the development and maintenance of the next-generation Mosquito Alert platform. This is a unique opportunity to work on impactful and cutting-edge projects. Key responsibilities include designing and implementing innovative geofenced APIs that deliver mosquito population distribution models, and creating a robust data integration pipeline combining diverse datasets such as global climatic variables, human density maps, and vector surveillance data. These pipelines will support the development of predictive models that are served via APIs, enabling real-time decision-making and analysis. Your contributions will help advance the fight against vector-borne diseases, offering impactful solutions to public health challenges worldwide.

Key Responsibilities

- <u>Development & Maintenance:</u> Contribute to the development, maintenance, and optimization of the Mosquito Alert platform and pilot projects, with a focus on developing robust, large-scale web applications and RESTful APIs using **Python**. Strong proficiency in backend frameworks such as **Django**, **FastAPI**, or **Flask**.

- Architectural Design & Scalability: Actively participate in architectural and design decisions, ensuring the platform's scalability, flexibility, and long-term adaptability to support future growth.
- Database Management: Design and manage data layers using **PostgreSQL** and **PostGIS**, ensuring efficient handling of geospatial data for the platform's needs.
- Containerization & Deployment: Expertise in containerizing applications using **Docker** to facilitate efficient deployment and scalability. Familiarity with deployment pipelines and **GitHub Actions** for continuous integration and continuous delivery (CI/CD).
- Code Quality & Maintenance: Familiarity with unit testing, code reviews, documentation, and system maintenance to uphold best practices and ensure system stability.
- Software Development Lifecycle: Engage in the full software development lifecycle, from gathering requirements and designing solutions to deployment and ongoing support, ensuring high-quality solutions and robust system maintenance.
- Cross-functional collaboration: Collaborate with cross-functional teams, including researchers, developers, and data scientists, to implement effective technical solutions that meet diverse needs.

Nice to have

- Knowledge of message-passing systems, such as **RabbitMQ** or **Redis**.
- Experience in the deployment cycle of services.
- Hands-on experience with **Terraform** to manage cloud infrastructure and **Ansible** for automation and configuration management.
- Familiarity with cloud technologies such as AWS, EC2, and S3.
- Practical experience with Agile development methodologies.
- Intermediate to advanced proficiency in English for effective communication in an international team.

Why join us?

- Flexible working hours to promote a healthy work-life balance.
- Remote work options for enhanced flexibility (up to 3 days per week, as per CSIC policy).
- Opportunities to collaborate with renowned national and international R&D and innovation centers.
- A supportive work environment that encourages continuous learning and skill development across diverse disciplines.
- Integration into a dynamic, multidisciplinary scientific team.
- Competitive salary between €30,000 and €50,000 annually, based on qualifications, experience, and contract type, in line with CSIC salary scales.
- The **workplace** is located at the **Centre d'Estudis Avançats de Blanes** (CEAB), CSIC, in Blanes, Spain.

Submission of applications

Send Curriculum Vitae and cover/motivation letter to the email: fbartu@ceab.csic.es with the subject: "**Backend Developer - [Your Name]**"

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CENTRO DE ESTUDIOS
AVANZADOS DE BLANES