

My name is **Benjamin Reyes Santamaría**, an Ecuadorian athlete and scientist with a focus on bioinformatics. As a competitive swimmer, I spent much of my school years training in the pool. After completing high school, I moved to Germany in 2019 to pursue my studies and have been living in Bochum, NRW, ever since.

In 2023, I completed my **Bachelor's degree in "Biochemistry"** at Ruhr University Bochum (RUB), where I am now in the final semester of my **Master's program in "Molecular and Developmental Stem Cell Biology"**. I am currently writing my Master's thesis in the **"Multidimensional Omics Analysis (MdoA) research group"** at the Leibniz Institute for Analytical Sciences – ISAS – in Dortmund, where I also work as a student research assistant.

From early on, I developed a strong interest in bioinformatics and data analysis, as these have become indispensable tools in modern life sciences. For this reason, I deliberately chose bioinformatics-focused modules during my Master's studies and have already gained hands-on experience in areas such as:

- Single-cell sequencing (ATAC and RNA) data-analysis
- Constraint-based metabolic modeling
- NGS (Bulk-RNA) data-processing in computational virology

In my Master's thesis, I am curating a **Short-Scale Metabolic Model (Mitocore)**. The project aims to integrate proteomics data into the model to achieve a robust parameterization of a neutrophil-specific model. A subsequent comparison will be carried out with a standardized and well-annotated Large-Scale Model (**Human1**). Additionally, I plan to implement automated model updates in line with CI/CD guidelines.

Looking forward, I would like to expand my research focus toward **artificial intelligence with clinical applications**. While I am currently working with a predictive model that, despite its strengths, requires considerable manual effort, I see great potential in AI-based approaches—both for integrating scientific knowledge and for practical use cases, such as clinical decision support systems in operating rooms or drug discovery pipelines.

A little about me: In addition to my native language, Spanish, I am proficient in both German and English (C1–C2 level). Although I no longer compete in swimming, sports remain a central part of my life. I train regularly at the gym, and in recent years, dancing has also become one of my main hobbies, helping me strengthen both time management and discipline.