Luigui **Gallardo-Becerra**

Data Scientist & Bioinformatician

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Data Scientist and Bioinformatician looking for new challenges to apply and expand my skills. In recent years, I participated in different projects using modern Genomic technologies (NGS), Data Analysis, and Data Science, to obtain novel biological information that culminated in high-impact peer-reviewed scientific publications

Experience

Graduate Research Assistant (Data Science & Bioinformatics)
Institute of Biotechnology, UNAM
January 2019 - Current

I was part of different research projects, from the beginning obtaining or creating the raw data to the final report or publication. The tasks that I carried out includes the following:

- Management of research projects: participated in the creation of main and secondary objectives and research questions from different projects to obtain novel biological information useful for the scientific community
- Server management (HPC): managed the Laboratory's server, installed Linux operative systems and specific software/packages, avoided server slowdowns, and built secure server environments
- Creation of pipelines: created pipelines to avoid repetitive workflows and make reproducible analysis using bash, Python, and Snakemake
- Software development: developed several software tools to solve and achieve specific goals using bash, Python, Perl, and R
- Creation of plots: using R, Rstudio, Jupyter Notebooks, Excel, Graphpad, and Tableau
- Maintenance of version control (CI/CD): creation and maintenance of GitHub repositories and their continuous version control
- Creation of reports/publications: using Markdown and Word, I delivered weekly and biannual reports to the members of the Laboratory. Also, I co-authored peer-reviewed publications that are highly cited in their respective areas
- Presentations to the general public and academic events: participated in scientific dissemination, specialized seminars, and congresses

Data Analyst
Appen
October 2016 - December 2018

I was an independent contractor and participated in several projects that included Data Sourcing and Annotation for different Appen clients (browsers, social networks, etc.). The tasks I performed were the following:

- Data collection and Preprocessing: obtention of raw data and preprocessing before passing it to the final client or the Machine Learning Department
- Creation of weekly deliverables: for the final client or project manager
- Content translation: from Spanish to English or English to Spanish

Software Engineer (Internship)
Dept. of Computer Science, CUCEI
May 2016 - July 2016

I participated in the creation of a web application. The tasks that I carried out included:

- Creation of web app: using ASP.NET Core (C#) and Angular (JavaScript, HTML, and CSS), I created an API to save patients' records and images.

Data Scientist & Bioinformatician (Internship) *Institute of Biotechnology, UNAM*
January 2016 - July 2016

I participated in the research project "Microbiome of Pacific whiteleg shrimp reveals differential bacterial community composition between Wild, Aquacultured and AHPND/EMS outbreak conditions". The tasks that I performed were:

- Big Data Analysis: using HPC, Linux, and bash, I analyzed the 16S rRNA information of several samples
- Creation of plots: using R, Rstudio, Excel, and Python
- Software development: I developed several tools for ETL data using bash, python, and Perl
- Creation of paper: with the data obtained from this internship, I co-authored this paper

Mathematics Teacher (Part-time) *Student Coaching*
January 2014 - December 2015

As a part-time teacher, I taught middle and high school students math classes to increase their grades or for college admission tests.

- Prepared group and individualized classes and lessons
- Applied weekly assessments to each student

Education

National Autonomous University of Mexico *Mexico City, Mexico*
Ph.D. (Computational Biology) *January 2019 - Current*

National Autonomous University of Mexico *Mexico City, Mexico*
Master of Science (Computational Biology) *August 2016 - January 2019*

University of Guadalajara *Guadalajara, Mexico*
Bachelor of Science (Molecular Biology) *August 2012 - January 2016*

Soft skills

- Team player who can also work independently with excellent communication skills
- Fast learner and could quickly adapt to new technologies.
- Excellent problem-solving capabilities.
- Can manage a significant workload or several projects from different areas without losing track of them.

Programming Languages, Tools & Bioinformatic skills:

- Programming Languages: Python, C#, R, SQL, Bash, HTML & CSS, JavaScript, Typescript
- Web frameworks: Django, ASP.NET, Angular, Shiny
- Other tools: High-Performance Computing (HPC), Linux, Tableau, Docker, Nextflow, Snakemake, Jupyter Notebooks, Rstudio, MySQL, PostgreSQL, MongoDB
- Bioinformatic skills: 16S rRNA profiling, Genome/Transcriptome assembly, and annotation, Metagenomics, Metatranscriptomics, Viromics

Languages

- English – Full professional proficiency
- Spanish – Native

Publications

1. Gallardo-Becerra, L., Cervantes-Echeverría, M., Cornejo-Granados, F., Vazquez-Morado, L. E., & Ochoa-Leyva, A. (2023). Perspectives in Searching Antimicrobial Peptides (AMPs) Produced by the Microbiota. Microbial Ecology, 87(1), 8. `https://doi.org/10.1007/s00248-023-02313-8`

2. Gallardo-Becerra, L., Cornejo-Granados, F., García-López, R., Valdez-Lara, A., Bikel, S., Canizales-Quinteros, S., López-Contreras, B. E., Mendoza-Vargas, A., Nielsen, H., & Ochoa-Leyva, A. (2020). Metatranscriptomic analysis to define the Secrebiome, and 16S rRNA profiling of the gut microbiome in obesity and metabolic syndrome of Mexican children. Microbial Cell Factories, 19(1), 61. https://doi.org/10.1186/s12934-020-01319-y

3. Bikel, S., Gallardo-Becerra, L., Cornejo-Granados, F., & Ochoa-Leyva, A. (2022). Protocol for the isolation, sequencing, and analysis of the gut phageome from human fecal samples. STAR Protocols, 3(1), 101170. https://doi.org/10.1016/j.xpro.2022.101170

4. Bikel, S., López-Leal, G., Cornejo-Granados, F., Gallardo-Becerra, L., García-López, R., Sánchez, F., Equihua-Medina, E., Ochoa-Romo, J. P., López-Contreras, B. E., Canizales-Quinteros, S., Hernández-Reyna, A., Mendoza-Vargas, A., & Ochoa-Leyva, A. (2021). Gut dsDNA virome shows diversity and richness alterations associated with childhood obesity and metabolic syndrome. iScience, 24(8), 102900. https://doi.org/10.1016/j.isci.2021.102900

5. Cervantes-Echeverría, M., Gallardo-Becerra, L., Cornejo-Granados, F., & Ochoa-Leyva, A. (2023). The Two-Faced Role of crAssphage Subfamilies in Obesity and Metabolic Syndrome: Between Good and Evil. Genes, 14(1), Article 1. https://doi.org/10.3390/genes14010139

6. Chino de la Cruz, C. M., Cornejo-Granados, F., Gallardo-Becerra, L., Rodríguez-Alegría, M. E., Ochoa-Leyva, A., & López Munguía, A. (2023). Complete genome sequence and characterization of a novel Enterococcus faecium with probiotic potential isolated from the gut of Litopenaeus vannamei. Microbial Genomics, 9(3), 000938. https://doi.org/10.1099/mgen.0.000938

7. Cornejo-Granados, F., Gallardo-Becerra, L., Leonardo-Reza, M., Ochoa-Romo, J. P., & Ochoa-Leyva, A. (2018). A meta-analysis reveals the environmental and host factors shaping the structure and function of the shrimp microbiota. PeerJ, 6, e5382. https://doi.org/10.7717/peerj.5382

8. Cornejo-Granados, F., Lopez-Zavala, A. A., Gallardo-Becerra, L., Mendoza-Vargas, A., Sánchez, F., Vichido, R., Brieba, L. G., Viana, M. T., Sotelo-Mundo, R. R., & Ochoa-Leyva, A. (2017). Microbiome of Pacific Whiteleg shrimp reveals differential bacterial community composition between Wild, Aquacultured and AHPND/EMS outbreak conditions. Scientific Reports, 7(1), 11783. https://doi.org/10.1038/s41598-017-11805-w

9. Jatuyosporn, T., Laohawutthichai, P., Romo, J. P. O., Gallardo-Becerra, L., Lopez, F. S., Tassanakajon, A., Ochoa-Leyva, A., & Krusong, K. (2023). White spot syndrome virus impact on the expression of immune genes and gut microbiome of black tiger shrimp Penaeus monodon. Scientific Reports, 13(1), Article 1. https://doi.org/10.1038/s41598-023-27906-8

10. Ochoa-Romo, J. P., Cornejo-Granados, F., Lopez-Zavala, A. A., Viana, M. T., Sánchez, F., Gallardo-Becerra, L., Luque-Villegas, M., Valdez-López, Y., Sotelo-Mundo, R. R., Cota-Huízar, A., López-Munguia, A., & Ochoa-Leyva, A. (2022). Agavin induces beneficial microbes in the shrimp microbiota under farming conditions. Scientific Reports, 12(1), Article 1. https://doi.org/10.1038/s41598-022-10442-2

11. Palomino-Hermosillo, Y. A., Berumen-Varela, G., Ochoa-Jiménez, V. A., Balois-Morales, R., Jiménez-Zurita, J. O., Bautista-Rosales, P. U., Martínez-González, M. E., López-Guzmán, G. G., Cortés-Cruz, M. A., Guzmán, L. F., Cornejo-Granados, F., Gallardo-Becerra, L., Ochoa-Leyva, A., & Alia-Tejacal, I. (2022). Transcriptome Analysis of Soursop (Annona muricata L.) Fruit under Postharvest Storage Identifies Genes Families Involved in Ripening. Plants, 11(14), 1798. https://doi.org/10.3390/plants11141798