Jaime A Castro-Mondragon

BIOINFORMATICIAN

Oslo, Norway

✉ jamondra@uio.no | 🏠 jaimicore.github.io | jaimicore | jaime-castro-mondragon

I am a computational biologist with 11 years of experience in research, sequence analysis, methods development and data visualisation. I have worked in both the academic and private sector. My main expertise is the development of algorithms to analyze multivariate data and apply them in a wider range of biomedical fields such as vaccine design or gene expression.

Working Experience

Akershus Universitetssykehus (Ahus)   *Oslo, Norway*

BIOINFORMATICIAN   *2025 - Present*

- Development and maintenance of bioinformatic workflows to analyze cancer samples (prediction of single nucleotide variants, structural variants, copy number alterations and gene fusions).
- Development of methods to provide evidence of clinically relevant variants.

Nykode Therapeutics AS   *Oslo, Norway*

BIOINFORMATICIAN (SCIENTIST II)   *2022 - 2025*

- Design and analysis of RNA-seq experiments to detect statistically significant changes in gene expression in human and mouse cells transfected with a vaccine candidate.
- Development, establishment, and maintenance of bioinformatic analysis pipelines (prediction of MHC-binding peptides, protease cleavage sites, RNA secondary structure).
- Train ML models to highlight protein features explaining experimental observations.
- Computational design of vaccine candidates (protein sequences) in 5 projects.
- Design of a NoSQL (JSON) protein sequence database.

University of Oslo   *Oslo, Norway*

POST-DOCTORAL RESEARCHER   *2017 - 2022*

- Co-lead the JASPAR database team (20 people) in the 2020 and 2022 releases (data QC, manual curation of results, development of motif analysis pipeline (R/python/Snakemake) and added motif clusters to the website).
- Development of a multi-omics (WES, WGS, RNA-seq, sRNA-seq, CNAs) integration method (written in R/Snakemake) to calculate the likely association of single-nucleotide variants with changes in gene expression in gene regulatory networks.
- +30 verified peer-reviews for scientific journals.
- Mentoring of 2 PhD and 3 master students.
- Supervisor: Anthony Matelier.

Toolkit

What	Level	Category
Python	Proficient	Programming language
R	Proficient	
Perl	Proficient	
Bash	Intermediate	
HTML / CSS	Intermediate	
D3	Intermediate	
JavaScript	Beginner	
SQL	Beginner	Databases
Snakemake	Proficient	Pipeline Development
GNU make	Intermediate	
nextflow	Beginner	
Docker	Intermediate	Containerization
Apptainer	Intermediate	
Git	Proficient	Version Control
aws S3	Beginner	Cloud
CI/CD	Intermediate	Automation

Technical Skills: clustering, dimensionality reduction, exploratory data analysis (EDA), data wrangling, multivariate analysis, statistical tests, Markov chains, ML (Random Forest, Linear Regression, Logistic Regression, model evaluation), Deep Learning (neural networks), Data Curation, pattern discovery, pattern matching.

Tools: jupyter notebooks, Rstudio, emacs, VS code, google docs, Linux (Ubuntu).

Education

Aix-Marseille Universite   *Marseille, France*
PHD IN BIOINFORMATICS   *2014 - 2017*
- Development of a computational methods to cluster transcription factor motifs.
- Development of a computational methods to detect enrichment of sequences.
- Design and implementation of software to create negative controls in DNA sequences.
- Supervisor: PhD Jacques van Helden.
- 6 publication derived from this thesis.

Institute de biology de l'Ecole Normale Superieure   *Paris, France*
MASTER IN SYSTEMS BIOLOGY   *2013 - 2014*
- Development of a method to cluster transcription factor binding motifs.
- Supervisor: PhD Jacques van Helden.

Universidad Nacional Autonoma de Mexico   *Cuernavaca, Mexico*
BACHELOR IN GENOMIC SCIENCES   *2009 - 2013*
- Detection of transcription factor binding motifs for uncharacterized transcritpion factors using sequence homology.
- Supervisors: PhD Julio Collado-Vides and PhD Alejandra Medina-Rivera.

Publications

Co-author of 23 peer-reviewed publications (6 as first author).

See the complete list of publications (including preprints) and citations in my google scholar profile: *pcevKk0AAAA*

ORCID profile: 0000-0003-4069-357X

Personalia

Date of birth
13/02/90
Citizenship
MEXICAN
Languages
SPANISH (NATIVE SPEAKER), ENGLISH (FLUENT), FRENCH (FLUENT), NORWEGIAN (INTERMEDIATE, A2 LEVEL)