

ROSHAN PADMANABHAN

Director, Informatics

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OBJECTIVE

Senior Director of BioInformatics

PROFESSIONAL SUMMARY

Dynamic bioinformatics leader with nearly two decades of experience, specializing in single-cell genomics and multiomic data integration. Pioneered the implementation of generative AI solutions and machine learning approaches for biological data analysis, demonstrating adaptability to emerging technologies. Proven track record in leading complex projects and cross-functional teams, with expertise in developing scalable computational infrastructure and fostering collaborative innovation. Successfully built and deployed cutting-edge analysis pipelines integrating single-cell genomics, machine learning, and multiomic data to drive scientific discoveries.

SKILLS

Project management

Team management

Generative AI

Data Science

Multiomic Integration

Single Cell Analysis

Python, R, SQL, MongoDB, Neo4j

scikit-learn, PyTorch, Pydantic, FastAPI, Streamlit

WORK HISTORY

Director of Informatics | Trailhead Biosystems - Cleveland OH

06/2024 - Current

- Created an Informatics strategic roadmap to foster a data- and AI- driven culture, accelerating automation, and digital transformation
- Developed an IP Invoice database utilizing generative AI for structured data extraction and text classification
- Developed a visualization prototype of human cell type hierarchy utilizing D3.js, Next.js
- Developed high-performing teams by providing mentorship, guidance, and opportunities for professional growth
- Manage computational infrastructure (cloud, in-house) and oversee IT integration

Senior Bioinformatics Scientist | Trailhead Biosystems - Cleveland, OH

01/2022 - 05/2024

- Led comprehensive bioinformatics projects including cell fate space construction from single-cell datasets
- Implemented ML and deep learning algorithms to identify attractors in biological data
- Developed custom in-house database for transcriptomics data storage (bulk and single cell) and front-end applications for data querying and analysis

- Tailored NGS nextflow pipelines and R markdown workflows for in-house data analysis
- Managed Azure cloud infrastructure, created efficient ETL pipelines, and formulated data engineering strategies
- Mentored interns and coworkers, demonstrating leadership and collaborative skills

Bioinformatics Scientist | University Hospitals - Cleveland, OH

05/2020 - 12/2021

- Integrated multiomic data (ChIP-Seq, ATAC-Seq, RNA-Seq) to study Krüppel-like transcription factors in vascular biology
- Developed downstream analysis pipelines for HiC data and deployed custom visualization tools
- Managed over 10 epigenomic and transcriptomics projects, showcasing project management expertise

Postdoctoral Bioinformatics Fellow | Cleveland Clinic - Cleveland, OH

11/2016 - 05/2020

- Identified multiomic signatures correlating metabolomics with microbial datasets.
- Developed machine learning pipelines for classifying microbes associated with Autism Spectrum Disorder.
- Investigated the role of PTEN in transcription using ChIP-Seq and RNA-Seq methods.
- Germline variant analysis of Children, Adolescents, and Young Adults (C-AYA) with Solid Tumor.

Bioinformatics Engineer | Institute Of Cardiovascular And Metabolic Diseases - Toulouse, France

05/2015 - 06/2016

- Analyzed enhanced clinical and metagenomic dataset through advanced machine learning algorithms.
- Developed pipelines for 16s Amplicon, Shotgun Metagenomics, and Bulk RNA-Seq datasets.

Senior Research Fellow | Hyderabad Central University - Hyderabad, India

03/2006 - 10/2011

- Conducted phylogenetic studies on the Lipoxygenase gene family, and acquired advanced techniques in embryonic stem cell culturing for regenerative medicine research.

Bioinformatician | JNCASR - Bangalore, India

09/2004 - 02/2006

- Assembled and annotated HIV genomes, contributed to comparative genomics of HIV genomes studies.

EDUCATION

School of Medicine, Aix-Marseille University - Marseille, France
Ph.D.

Goa University - Goa, India
Master of Science: Marine Biotechnology

Jawaharlal Nehru University - New Delhi, India
Advanced Post Graduate Diploma in Bioinformatics

Kerala University - Kerala, India
Bachelor of Science: Biotechnology