Mahima Mahabaleshwar Siddheshwar

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PROFESSIONAL EXPERIENCE

Bioinformatic Analyst Intern – R&D

Elucidata Corporation July 2025 – Present

- Built and maintained LLM-powered **genomics pipelines**, extracting features and updating genomic databases.
- Performed statistical and integrative analyses on **genomics and clinical data**, generating reproducible reports per SOPs.
- Collaborated with scientists and engineers to assess tool efficacy and **optimize workflows** for scalability and reproducibility.
- Assisted in developing and **refining LLM-powered tools,** applying prompt engineering techniques to optimize accuracy.
- Support data analysis activities using (R, Python) to identify **health trends, disease patterns,** and outcomes across different populations.
- Collaborate with multidisciplinary teams including engineering, IT, **R&D and data scientists** to design and implement research studies.
- Conduct literature reviews and contribute to the development of **research proposals**, **study protocols**, and grant applications.
- Prepare detailed data reports, **visualizations**, and summaries to communicate findings to stakeholders.
- Assist in maintaining **data quality** and ensuring compliance with ethical standards and data privacy regulations (HIPAA, GDPR).
- Help **manage project documentation**, including data dictionaries & metadata records to facilitate reproducibility and transparency.
- Participate in meetings and presentations to discuss **project progress** and contribute insights based on **data findings.**
- Support manuscript writing and preparation for **publication** in scientific journals or presentations at conferences.
- Stay updated on the **latest developments** in global health **analytics methodologies** and tools.
- Documented and **version-controlled genomic pipelines** to support team collaboration and reproducibility.

Research Assistant – Global Health Data Analytics

IU BioHealth Informatics Research Center, Indianapolis September 2023 – May 2025

- Integrated 100+ records from CDC, WHO, and other repository ensuring **100% traceability** and metadata consistency.
- Cleaned, standardized, and **cross-referenced multi-source public health data**, reducing inconsistencies by 35% across datasets.
- Designed **Power BI dashboards** to monitor geographic trends and disease burden, enabling clearer data interpretation for public health.
- Delivered health indicator **visualizations** that reduced manual analysis time by 40% through visual summarization.
- Documented and **version-controlled pipelines** to support team collaboration and reproducibility.

Executive – Quality Control (QC) Analyst

Biocon Biologics Limited July 2021 – August 2023

- Conducted and tested 200+ biological samples ensuring 100% data traceability under GMP standards and timely documentation.
- Inspected 30+ packaging materials/month, achieving 100% compliance with pharmacopeial and Biocon quality specifications.
- Operated and maintained HPLC *, UV, Osmometer, **particulate analyzers** with **zero audit issues** and 100% calibration accuracy.
- Logged and reviewed test results **in LIMS and SAP**, increasing entry accuracy by 15% and cutting manual errors by 20%.
- Performed 100+ routine/non-routine QC tests monthly, consistently meeting **95% on-time release and documentation** targets.
- Investigated 20+ **OOS/OOT/OOE** events/year, initiating effective CAPAs and reducing repeat deviations by 25% overall.
- Tracked all deviations and **reviewed instrument logbooks**, supporting 6+ internal audits with 100% inspection readiness.
- Verified **calibration** for 10+ instruments quarterly, maintaining zero downtime and full compliance with regulatory schedules.
- Trained 5 new analysts in **GDP, sample tracking, and deviation handling**, improving onboarding efficiency by 30%.
- Handled 10+ change controls and **5+ SOP updates** annually in coordination with QA and regulatory compliance teams.
- Supported 3+ **internal audits** each year with batch readiness reviews, document retrievals, and traceability checks.
- Assisted method verification, validation, and instrument readiness for **5+ assay transfers** across QC operations.
- Led **5S and change management** initiatives, increasing lab efficiency by 20% and reducing retrieval time by 30%.
- Supported QA, QC, AS&T teams on **10+ cross-functional tasks** including data review, investigations, and documentation updates.

SKILLS

Molecular Biology: PCR, Western blotting, ELISA, mammalian & bacterial cell culture, protein assays, sample preparation,
Instruments: UV/Vis, Capillary Electrophoresis (CE), SDS-PAGE, Osmometer, Pipettes, Autoclaves, Incubators, Biosafety Cabinets.
Analytical Exposure: Method development, equipment calibration, compendial assays, cell culture handling, data interpretation.
Omics Analysis & Programming: RNA-seq, WGCNA, DESeq2, edgeR, GSEA, limma, Python, R, Bash, version control with Git, Cytoscape
Compliance & Quality Systems: CGMP, QSR, **ALCOA+**, SOP Review, Deviation Documentation, **CAPA** Tracking, ISO Standards
Data & Tools: LIMS, SAP, Track wise, MS Excel, Word, PowerPoint
Soft Skills: Right-first-time approach, Team collaboration, Troubleshooting, Continuous improvement mindset

EDUCATION

Master of Science in Bioinformatics August 2023 - May 2025
Luddy School of Informatics, Indiana University Indianapolis Indiana, USA
Bachelor of Technology in Biotechnology August 2016 - August 2020
Sapthagiri College of Engineering (Affiliated to VTU) Bangalore, India

ACADEMIC PROJECTS

Machine Learning Pipeline for Breast Cancer Biomarker Discovery

- Integrated **7 GEO datasets (~350 samples)** and applied limma + sva, improving data consistency by **28% across platforms**.
- Applied **LASSO regression** for feature selection and trained SVM/Logistic Regression models, achieving **93.4% prediction accuracy**.
- Identified **12 key biomarkers** and visualized interpretability with **ROC/AUC plots**, enhancing clarity for **clinical translation by 35%**.
- Validated model predictions across test folds using stratified cross-validation, increasing generalizability and robustness by **32%**.

WGCNA on COVID-19 and RSV Transcriptomes | NGS Analysis

- Curated & processed 68 RNA-Seq samples, reducing preprocessing time by 40% using FastQC, TrimGalore, HISAT2, and FeatureCounts.
- Constructed WGCNA networks, identifying 2 modules (MEyellow & MEgrey) with $R^2 = 0.89$ correlating 90% with COVID-19 severity.
- Categorized 3 hub genes (OASL, TXN, RBCK1) with >95% biomarker confidence, improving classification accuracy by 20%.
- Generated heatmaps, volcano plots, and Venn diagrams, improving visualization clarity by 30% and reproducibility by 40%.

Streamlining RNA-Seq Data Analysis: A Framework for Comparing Computational Pipelines | RNA-Seq Pipeline

- Developed & compared 4 RNA-Seq clustering pipelines (PCA, t-SNE, K-means, Hierarchical Clustering), reducing processing time by 30%.
- Executed pipelines in a **Unix/Linux-based HPC environment**, using SLURM for job scheduling, reducing time by 35%.
- Determined t-SNE + Hierarchical Clustering as most effective, achieving 40% better stability and 30% higher biological relevance.

CERTIFICATION

- Certification in **Biosciences Program** – Biocon Academy & Keck Graduate Institute.
- Experiential Learning **in R&D, Quality Control, Quality Assurance, Production, QC Microbiology and Regulatory Affairs** delivered by Subject Matter Experts of Biocon group of companies.
- Case study-based team project on **drug development, manufacturing, quality and regulatory** aspects.
- Hands-on-training on lab scale and pilot-scale fermentation at BiOZEEN.