SHIVANI SONI

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Professional Summary

I am a biotechnology postgraduate specializing in the convergence of **molecular biology and computational biology**. Proficient in combining wet-lab techniques like molecular cloning, ELISA and biomanufacturing and bioprocessing along with **data analysis** using computation tools like **Python and Machine Learning** to drive data-backed experimental outcomes. Proven ability to leverage analytical tools for process optimization and predictive modeling. Eager to apply this hybrid in **computational biology and data analysis** roles to accelerate discovery

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Integrated MSc Biotechnology GPA: 8.55/10
Vellore Institute of Technology

High School (CBSE) 82%
The Royal Gondwana Public School, Nagpur

Secondary School (CBSE) 87%
Kendriya Vidyalaya Vayu Sena, Nagpur

Internships

Research Intern — ICMR-National Institute of Virology, Pune — LINK (5 months)

- Performed **molecular cloning of HAV VP1 gene** in a bacterial system and protein expression and purification workflows relevant to QC-grade recombinant proteins.
- Executed **SDS-PAGE, Western Blot, and ELISA** ensuring high assay reproducibility.
- Optimized **cloning designs using SnapGene** and maintained GLP-compliant documentation.

Research Intern — Rajiv Gandhi Biotechnology Centre, Nagpur — LINK (5 months)

- Conducted physicochemical characterization of **iron oxide nanoparticles** using advanced **analytical techniques (SEM, EDX, X-ray Diffraction)**, ensuring material specifications met quality standards
- Implemented **Quality Control (QC)** protocols to verify process outputs against predefined specifications, demonstrating a keen attention to detail and **adherence to SOPs, documentation standards aligning with GLP/GDP principles.**

Project Trainee — Verzeo Genomics Internship (IIT Bombay, Remote) — LINK (2 months)

- Deciphered human genome redundancy by performing **DNA word analysis.**
- Quantitatively mapped frequency distributions to identify patterns in sequence motifs and **reveal chromosomal repeat.**

Projects

Breast Cancer Risk Prediction using Machine Learning — LINK

- Developed a complete ML pipeline using **Logistic Regression** with **99.24 percent accuracy, including preprocessing, EDA, feature scaling, and hyperparameter tuning.**
- Performed preprocessing, EDA, feature scaling, and evaluated using ROC-AUC and confusion matrix.
- Demonstrated use of ML for biological data QC, early risk prediction, and automation of diagnostic decision systems.

QMS Dashboard: COVID-19 Data Interpretation — LINK

- Built **interactive dashboards** to visualize large datasets and identify quality indicators, trends, and correlations.
- Automated data interpretation workflows, **improving analysis time and reporting efficiency.**

Certificates & Achievements

- Winning **CSIR-108th Indian Science Congress Quiz** — Demonstrated scientific excellence. — LINK
- **Poster presentation** on ML-based breast cancer risk prediction at VIT Bhopal. — LINK

Skills

Data & Computational: LaTeX, Python, SQL, Tableau, Power BI, MS Excel, Google Sheets, SnapGene, MEGA X

Wet Lab: Molecular Cloning, PCR, DNA/RNA Extraction, Fermentation, Protein Purification, HPLC, ELISA, SDS-PAGE, Western Blot

Quality & Regulatory: GLP/GMP Documentation, FDA/ISO Standards, SOP Writing, Risk Management

Soft Skills: Analytical Thinking, Attention to Detail, Data-Driven Decision Making, Team Collaboration