RONIT ROY CHOUDHARY

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Bioinformatician and Computational Biologist

Profile

Bioinformatician and Computational Biologist with expertise in NGS analysis, cancer transcriptomics, and machine learning–based predictive modelling. Experienced in building automated variant-calling pipelines and biomarker discovery workflows using GEO and TCGA datasets. Skilled in translating high-throughput genomic data into clinically relevant insights for precision oncology, with a strong focus on AI-driven, reproducible research.

Experience

Research Trainee

The Himalayan Centre for High-throughput Computational Biology (HiCHiCoB), CSIR–IHBT
January 2026 – Present | Palampur, India

- Developed an automated NGS-based variant calling and antibiotic resistance profiling pipeline for Mycobacterium leprae, improving reproducibility and reducing manual analysis time.
- Designed and implemented an end-to-end Hi-C data analysis workflow using the Juicer framework for chromatin interaction mapping.
- Built a machine learning model to predict Hi-C contact maps from RNA-seq expression profiles, exploring transcriptome–chromatin architecture relationships.
- Performed quality control, alignment, variant calling, and downstream genomic analysis using industry-standard bioinformatics tools.

Research Intern

Department of Surgical Oncology, Institute of Medical Sciences (IMS), Banaras Hindu University (BHU)
May 2025 – July 2025 | Varanasi, India

- Conducted integrative transcriptomic analysis of head and neck cancer using GEO and TCGA datasets.
- Identified differentially expressed genes (DEGs) and constructed PPI and gene–miRNA networks using STRING, Cytoscape, and NetworkAnalyst.
- Performed functional enrichment analysis (GO, KEGG) and pathway mapping to identify key oncogenic signaling mechanisms.
- Conducted Kaplan–Meier survival analysis and Cox proportional hazards modelling to evaluate prognostic biomarkers.
- Integrated multi-layer bioinformatics results to propose candidate biomarkers for precision oncology applications.

Education

M.Sc. Bioinformatics and Computational Biology
Devi Ahilya Vishwavidyalaya |CGPA: 8.62 |Expected July 2026

B.Sc. Biotechnology
Bharati Vidyapeeth |CGPA: 8.25 |Nov 2021 – June 2024

Skills

- **Programming & Scripting**
  Python (Pandas, NumPy, Biopython, Matplotlib), SQL, C++, Bash
- **Bioinformatics & Genomic Analysis**
  NGS data analysis, Quality control (FastQC), Genome annotation, Variant calling, Differential expression analysis, Hi-C analysis (Juicer)
- **Tools & Platforms**
  STRING, Cytoscape, NetworkAnalyst, GSEA, DAVID, GeneMANIA, BLAST, ClustalW
- **Databases**
  GEO, TCGA, NCBI, UniProt, DrugBank, PDB
- **Machine Learning & Deep Learning**
  Supervised learning, Feature selection, Model evaluation, Predictive modelling
  Deep learning: TensorFlow, PyTorch; CNNs, Transformers, sequence models (including Mamba) networks
- **Statistical Analysis**
  Kaplan–Meier survival analysis, Cox regression, Log2 fold change (Log2FC), FDR correction
- **Drug Discovery & Computational Chemistry**
  Molecular docking, Virtual screening, ADMET analysis

Certifications

- Data Analyst Skill Path – Udemy
- Computational Protein Modelling and Analysis – NPTEL (SWAYAM)
- Introduction to Microsoft Excel – Coursera
- Excel Skills Job Simulation – JPMorgan Chase & Co. (Forage)
- iON Career Edge – Young Professional – TCS
- Next-Generation Sequencing for Influenza & SARS-CoV-2: From Sample Collection to Analysis – WHO

Conferences & Presentations

- **Selected for Presentation – COPM 2026 (International Conference)**
  Silesian University of Technology, Poland | April 29, 2026
  - Presented *integrative transcriptomic analysis of TSCC identifying cross-population molecular signatures and regulatory networks*
  - Aligned with theme: From Genome to Treatment: AI & Precision Medicine
  - Abstract published in official conference proceedings

Publications

- *"Integrative Transcriptomic Analysis Identifies Shared Coding and Non-Coding Biomarkers in TSCC Across Diverse Populations" (Manuscript under review)*
  *Authors: **Ronit Roy**; Monika Rajput; Manoj Pandey*
- *"Preoperative NLR and PLR as Robust Prognostic Biomarkers for Oral Squamous Cell Carcinoma" (Manuscript under review)*
  *Authors: Tarun Kumar; Mandar Tilak; Akshay Kantha; Shayak Roy; Monika Rajput; **Ronit Roy**; Manoj Pandey*

References

Prof. Manoj Pandey

- Dean (Research), IMS, BHU
- Professor, Surgical Oncology
- Institute of Medical Sciences, Banaras Hindu University
- **Email:** mpandey66@bhu.ac.in

Dr. Hamendra Singh Parmar

- Professor & Head of the Department
- School of Biotechnology, Devi Ahilya Vishwavidyalaya (DAVV), Indore
- **Email:** hamendrasingh999@yahoo.co.in