

VANSHIKA RAJPARIA

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US Citizen

EDUCATION

B.E. Computer Science & MSc. Biological Sciences,
BITS Pilani, India **CGPA: 9.01 / 10.00**
5-Year Integrated Dual Degree Program (2020–2025) – One of India's premier technical institutions

TECHNICAL SKILLS & COURSEWORK

Coursework: Data Structures, Object-Oriented Programming, Operating Systems, Computer Networks, Database Systems, Bioinformatics, Genomics, Molecular Biology.

Programming Languages: Python, Java, C++, SQL, JavaScript, R, Bash, MATLAB.

Data Science: Machine Learning, Data Analytics, NLP, Deep Learning, Data Visualization.

Frameworks & Tools: React, Angular, MERN Stack, Git, REST APIs, MongoDB, Docker, AWS, TensorFlow.

Bioinformatics: RNA-Seq, Transcriptomics, NGS Analysis, GTF/FASTA, BioPython, Genomics.

EXPERIENCE

Software Engineering Intern July 2024 - Present
ORACLE

- Built **concise summaries of audit reports using Generative AI and LLMs**, highlighting key security events that could impact user data in Oracle DataSafe.
- Integrated these summaries into asynchronously generated audit reports using **Generative AI, REST APIs, SQL, and Java** enabling end-users to quickly identify critical fields and take timely action on potential risks.
- Developed APIs and security features, performed unit testing, and end-to-end testing for Oracle DataSafe's security policies.

Summer Research Intern June 2023 - Aug 2023
University of California, Los Angeles (UCLA)

- Designed and developed an **Electronic Dental Referral Management System (EDRMS)** at the UCLA School of Dentistry using Microsoft Power Platform, to maximize dental coverage to all the schools in California.
- Designed a data model based on **ERD principles** and implemented the app's **user interface and business logic**, streamlining patient referrals and identifying trends enhancing overall oral health outcomes.

Summer Intern July 2022 - Aug 2022
Aktivolabs Singapore Pte. Ltd.

- Worked on Data Analytics in the healthcare domain to **predict the susceptibility of the UK population to diabetes and other chronic illnesses**.
- Conducted comparative analysis of **predictive Machine Learning algorithms**, including **NLP-based classification** of illness descriptions into disease categories, with model evaluation for predicting diabetes susceptibility and supporting informed healthcare decision-making.

Summer Intern May 2022 - July 2022
RRSC, Indian Space Research Organization

- Built an **RCNN-based AI/ML model** for detecting solar panels in satellite imagery across Rajasthan.
- Learnt basics of ML and CNNs including a course - 'Basic Image Classification with TensorFlow'.

ACADEMIC PROJECTS

Influenza Virus Mutation Prediction - ML Model

- Developed an ML model to predict mutation probabilities for Influenza Virus proteins - hemagglutinin (HA) and neuraminidase (NA) using **feature engineering** on **sequence conservation**, **GC content**, mutation type, and structural data.
- Applied a **Random Forest Regressor** to model mutation probabilities and devised a formula to assign weights to features, enhancing prediction accuracy. Also used custom feature weighting and evaluated the model using **cross-validation** and **R² scoring**.

RNA-Seq – Next Generation Sequencing

- Built a targeted RNA-Sequencing analysis pipeline with **quality control (FastQC)**, read filtering and adaptor trimming (**Trimmomatic**), and alignment using **STAR**.
- Generated custom GTF annotations, performed reference-based alignment, and quantified gene expression with **HTSeq** and **featureCounts**.

CureCraft - Full Stack Web App

- Built and designed a **full-stack medical center management app** using the **MERN stack**, with features including online booking, rescheduling, patient history, and automated email/SMS reminders.
- Implemented **dynamic search by doctor specialty using MongoDB indexing and RESTful API endpoints**, added feature to upload prescriptions for easy future access by the patient, and developed an **admin dashboard with real-time analytics and data visualization** to view overall statistics of the medical center by the admin.

ACCOMPLISHMENTS

Top 10 – Spaceport America Cup, World's Premier Collegiate Rocketry Competition

- Designed a microgravity experiment on antimicrobial resistance, selected among top 10 out of 150+ international teams, also getting an honorable mention.

INSPIRE Scholarship Awardee - Indian Ministry of Science

- Awarded to the top 1% of students in the state of Maharashtra for academic excellence in STEM.

LEADERSHIP POSITIONS

Secretary - Synopsis, Biology Association of BITS Pilani Aug 2022 - July 2023

Head - Biological Payload Team @SEDS BPHC, the Rocketry Club Aug 2021- July 2022