ISHITA GOSWAMI

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SUMMARY

- Experienced in **machine learning** and proficient in **Python(NumPy, pandas, matplotlib, scikit-learn, NetworkX), ML algorithms, statistical modelling, R, MySQL, Linux,** and **HPC.**
- Aspiring ML Engineer with a strong STEM background, proficient in bioinformatics and software development

EDUCATION

University of Manchester   Manchester, UK
MSc Bioinformatics and Systems Biology   September 2022 – September 2023
- Modules: Bioinformatics, Computational Biology, Programming Skills, Statistics and Experimental Design.

Panjab University   Chandigarh, India
BSc Microbiology and Food Technology (First – Class Honours)   May 2018 – May 2021
- Modules: Cell Biology, Microbial Genetics, Immunology. rDNA Technology, General Microbiology, Environmental Microbiology, Industrial Microbiology, Bioanalytical Techniques, Chemistry, Biochemistry, Food Engineering, Food Preservation, Quality Control and Analysis, and Intellectual Property Rights (IPR).

SKILLS

- **Machine Learning and AI: Supervised and Unsupervised learning**, Principal Component Analysis, Logistic and Linear Regression, Clustering, Decision Trees, Neural Networks
- **Programming Languages:** Python(NumPy, scikit-learn, matplotlib, pandas, NetworkX), R, GitHub and Git, Unix & Linux commands, Bash, Shell scripting, HTML, CSS. JavaScript, TypeScript, ReactNative
- **Data Preparation:** Web Scraping, Data Wrangling, Data Cleaning
- **Data Science & Statistics:** R Studio, Statistical modelling, Data Visualization
- **Computational Biology / Bioinformatics:** Bioinformatics Databases, BLAST, NGS Analysis, Phylogenetic Analysis, Sequence Analysis, Network Analysis, Logical and metabolic modelling
- **Next Generation Sequencing Tools:** Illumina, Nanopore, PacBio reads, FASTQ Quality Control, Genome Assembly, Sequence Alignment, Gene Annotation, Gene Mapping, Visualisation

INTERNSHIP EXPERIENCE

BioTecNika Ltd   Remote, India
AI/ML Development Project Intern   November 2024 - Present
- Conducting research and analysis to identify patterns, and potential AI tools related to antibiotic resistance in bacteria
- Developing machine learning models for bacterial resistance pattern prediction
- Currently in the process of conducting a literature review to establish a research pipeline

CodeGenesis Ltd   Remote, Australia
Software Development Intern   May 2024 - Present
- Contributing to the end-to-end development of applications; from ideation to deployment preparation using TypeScript, ReactNative, Node.js, and Git for version control
- Collaborating with a small team to assist in design, code, test, debug, and development of mobile applications

GreenClones Pvt Ltd   Karnataka, India
Bioinformatics Trainee   August 2020
- Worked on bioprospecting of small molecules implementing bioinformatics tools to analyse and interpret data
- Gained hands-on experience in applying drug discovery methods, protein visualization, protein modelling, and molecular docking along with ADMET prediction to assess drug like properties

GlaxoSmithKline (GSK)   Nabha, India
Trainee Intern   June 2019 – July 2019
- Performed microbiology QC/QA lab technician duties to ensure product quality and safety in accordance   with company SOPs and regulatory standards
- Monitored the industrial mechanics to support technical operations and handled administrative tasks

Certifications: Stanford University Food and Health, John Hopkins Introduction to Genomic Technologies. Science Leadership Workshop, Computer Aided Drug Design, Core concepts of Cloud Computing, Using Public Health Data Sources

RESEARCH PROJECTS

Genomic basis of transition to symbiosis   May 2023 – September 2023
- Implemented comparative genomics and pathway mapping techniques to establish functional dependency of symbiotic *Chlorella* on host *Paramecium Bursaria* leveraging comparative genomics on 18 species
- Mapped symbiotic species to amino acid metabolic and biosynthesis pathways (Arginine, Glutamine, Alanine) while non-symbiotic species largely mapped to amino acid biosynthesis pathways compared to metabolism pathways
- Key skills: Bioinformatics tool development(Python, shell scripting), pipeline optimization, MSA, phylogenetics analysis, gene mapping, High Performance Computing (HPC), data analysis(R programming)

Refactoring a Bayesian interactive key for online species identification   December 2022 – May 2023
- Successfully designed and developed a robust interactive web prototype utilizing Bayes theorem, HTML, CSS, JavaScript, Python(API employing FlaskCORS and Backend) based on a pre-made Linyphiid key of 1531 species
- Made the project available on GitHub
- Key skills: Web scraping, data wrangling, web development

University of Manchester Semester 1   September 2022 – January 2023
- Bioinformatics look-up database for mRNA/diseases (command-line based)'
- Development of a Python proteome analysis pipeline (Group project)
- Sequence analysis, RNASeq analysis, Phylogenetics and proteomics
- Key skills: Python and R programming, command-line, bioinformatics analysis, literature review, data analysis.

Impact of COVID-19 on Food Business   January 2021 – May 2021
- Conducted a surveillance research project to assess the impact of COVID-19 on food businesses, including street food vendors, cafes, restaurants, and hotels
- Collected data through interviews to facilitate comparative analysis of different aspects of businesses, including the struggles faced during the pandemic
- Key skills: Data collection, data analysis, comparative analysis, research methodology

Effect of *Citrus sinensis* peels on *Aedes aegypti* (Group project)   May 2020 – January 2021
- Executed a group literature review project and performed a small experiment using lab grown mosquitoes and dried orange peels to test the insecticidal properties of orange peel juice extract, finding that the extract reduced mosquito survival by 50%
- Key skills: Literature review, experimental design, data collection, teamwork

POSTER PRESENTATION & CONFERENCES

- Presented poster on, "Refactoring a Bayesian multi-entry interactive key for online species identification" at the School of Biology, Medicine, and Health at the University of Manchester.

LEADERSHIP & VOLUNTEERING

University of Manchester   February 2023 – September 2023
Student Volunteer
- **British Science Week at Manchester Museum:** Provided support, direction, and navigation
- **Wrights woods, whitworth park:** Environmental volunteer work involving cleaning and gardening
- **Community mapping for Uganda**
- **Student Action Homelessness projects**

Punjab University   March 2020 – March 2023
Event organisation, technical assistance, volunteer
- Organized events, including setting up, interacting with guest speakers, performing technical and stage checks, proof reading presentations, improvising activities in case of delays/mishaps, escorting guests/audience to conference venue, and wrap up