Mahendra Pratap Singh

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Mini Capstone Projects on Data Science

- RNASeq Analysis | Notebook
- BetaCoronavirus Genotyping for Armenian WGS isolate | DOI
- Build a machine learning model to improve the performance across the business funnel of advertisers using various regression techniques on the top of DeltaX dataset | Notebook
- MD Simulation using Gromacs and Google Colab | Notebook

Experiences

- Currently, I am employed as a Bioinformatician at The Molecular Endocrinology and Reproduction Biology Lab, within the Department of Zoology at the University of Delhi's North Campus. In this role, I am engaged in Molecular Docking and Simulation, analyzing Microscopic images, and processing BRET datasets. Additionally, I am involved in teaching Data Analysis in Biology to MS students.
- Sequence and Evolutionary Analysis Of miR2118 and miR2275 in Sorghum, supervised by Prof. Rita Sharma at SCIS, JNU
- Comparative Study Of Triticum Urartu Genome, supervised by Dr Mamta Sagar at UIET, CSJM University
- Understanding The Lung Cancer Using Bioinformatics, supervised by Dr Mukesh Kumar Awasthi at AKS University,
- As an intern, I worked briefly on BetaCoronavirus Genotyping under the guidance of Mr Praharshit Sharma, Bioinformatics Specialist, at NCDC-New Delhi

Data science skills

- Programming: Python and R
- Libraries and Framework: pandas, numpy, matplotlib, seaborn, scikit-learn, scikit-image tensorflow/keras, opencv, and Streamlit etc.
- Machine Learning and Deep Learning algorithms: Regression, Classification, Clustering, Dimensionality Reduction, Deep Learning: Convolutional Neural Networks and Image Segmentation-Classification
- OS: Linux-Ubuntu, macOS and Window
- Cloud platform: Google Cloud Platform (GCP)
- Version Control: Git and GitHub
- Software Containers: Docker, Nextflow and Airflow
- Notebook: Jupyter and Colab Notebook
- Molecular Visualization Tools: PyMol, UCSF-Chimera, Maestro, Discovery Studio, BioRender, VMD, and Open Babel **MD Simulation Platform**: Gromacs, NAMD, ClusPRO, and HadDock
- Image Visualization: Fiji: ImageJ, BioImageXD | Network Visualizer: Cytoscape and GePhi
- NGS data analysis: **Quality control** FastQC, Fastx, FastP, MutliQC, NGS-QC and Trimmomatic | **Aligner**: Bowtie, TopHat2, HISAT2, Genome Mapper, Minimap2 and STAR | **Assembler**: Velvet, SPAdes ABySS and StringTie | **Read Counter**: STARcount and featureCounts | **Bioconductor**: DESeq2 and edgeR
- Literature Management: Zotero, Mendeley, Research Rabbit and ProWritingAid

Summer School

- Data Analytics Internship at Start-Tech Academy, May 2022 | Certificate
- Next Generation Sequencing Data Analysis from National Genomics Core-CDFD, Hyderabad
  Jun 2021 | Certificate
- Data Science Summer School from Hertie School Data Science Lab, Berlin, Germany
  Jul 2021 | Certificate
- Summer Data Science Boot Camp from Consulting and Analytics Club, IIT Guwahati, India
  Jun 2021 | Certificate

Workshops | Conferences

- How to build modern data science prototype applications from Hertie School Data Science Lab, Feb 2022
- AI Model in a Notebook to Production from Abacus.AI MLOps | Certificate
- AI in Drug Discovery from Imperial College Computational Biology Society Feb 2021 | Certificate
- Indo-German Spring School on Algorithms for Big Data, IIIT New Delhi, Feb 2020
- Data Science using R from IIIT New Delhi, Dec 2018

National examinations

- JNUEE MTech./PGD-2019 **Rank**: 02 | Reg No: 1611000144
- ICAR-JRF/SRF-2020 Bioinformatics **Rank:** 37 | **Roll No:** MP13000207

Educations

Post Graduate Diploma in Biological Data Analytics | School of Computational and Integrative Sciences, JNU | New Delhi, India | July 2019-Aug 2020 with CGPA: 7.32

Master of Science in Bioinformatics | University Institute of Engineering and Technology, CSJM University Kanpur | U.P India | July 2016-June 2018 with CGPA: 7.40

Bachelor of Science (H) in Biotechnology, School of Life Sciences and Technology, AKS University Satna M.P India | July 2012-June 2015. with CGPA: 6.36

MOOC I have acquired and enhanced new skills through various MOOC courses related to bioinformatics from different learning platforms, all of which I have detailed on my LinkedIn profile. Currently, I am enrolled in the following two courses: [1] Computational Genomics and [2] Comprehensive Molecular Diagnostics and Advanced Gene Expression Analysis from NPTEL.

References

Prof. Rita Sharma, Professor, and Thesis Supervisor, SCIS-JNU New Delhi, India.
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Prof. Shandar Ahmad, Professor, SCIS-JNU New Delhi, India.
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