Rohit Kumar Verma

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Summary

As an accomplished professional with over 6 years of experience in Bioinformatics and Computational Biology, I am excited to bring my expertise to the table. My academic background includes MTech in Computational Biology and MSc in Bioinformatics and I am currently in the 5th year of my PhD in Bioinformatics at Shiv Nadar Institution of Eminence and currently looking for the job. My passion for open-science and reproducible research is at the core of my work ethic. I am a staunch believer in the value of teamwork and have honed my leadership skills through managing successful projects. I am confident that my strong communication and critical thinking abilities will prove invaluable in positively impacting research projects and industry products.

Education

Shiv Nadar Institution of Eminence (SNIoE)   Expected June 2024
Ph.D. Candidate, Bioinformatics, Department of Life Sciences (CGPA: 8.6)

Indraprastha Institute of Information Technology, Delhi   2017-2019
Master of Technology in Computational Biology (MTech) (CGPA: 7.45)

Central University of South Bihar   2013-2015
Master of Science in Bioinformatics (MSc) (CGPA: 8.43)

Regional Institute of Education, Utkal University   2009-2013
Bachelor of Science and Education (B.Sc. BEd.) (66%)

Experience

ChemBioAI   2024-Present
Mentor
- At the moment, I'm guiding two interns through the process of analyzing a comprehensive set of omics data.

Shiv Nadar Institution of Eminence   2019-Present
PhD. Scholar
- Currently investigating the key Biomarkers in different cancer using different Machine learning and different bioinformatics approaches and validating through different wet lab approaches.

Shiv Nadar Institution of Eminence   2019-2023
Teaching Assistantship
- I was working as a TA and taking courses for undergraduate (BSc.) Students. I have taught courses like BIO101 Fundamentals of computers and BIO208 Bioinformatics.

Indraprastha Institute of Information Technology, Delhi   2017-2019
Teaching Assistantship
- I was a TA during my MTech program where I was involved in taking Tutorials as well practical classes for the courses like Psychology, Positive Psychology, System Programming, Fundamental of Modern Biology and Research Methodology.

System Infra Solutions Pvt. Ltd, Delhi   2015-2017
Project Intern
- I was involved in a project where I worked as a Trainee for Backend and Frontend developer.

Translational Health Science and Technology Institute (THSTI), DDRC lab, Delhi.   May 2014-July14
Teaching Assistantship
- I was involved in the project for that basically involved in finding the correlation between given Proteomics and Transcriptomic data of Liver Tissue, Mus musculus. Under the supervision of Dr. Samrat Chaterjee.

Academic Projects

Dissertation: MTech Thesis | *2018-2019*
- Cell Free DNA Analysis to improve detection of diseases. To find minimal set of marker locations for diagnosis of some disease using cell free DNA and to develop method to use genome wide signal to detect any disease using cfDNA signature (5hMC, DNA fragment patterns). Under the supervision of Dr. Vibhor Kumar.

Dissertation: MSc Thesis | *Jan 2015-May 2015*
- Molecular Docking Studies on Inhibition of STAT3 Dimerization of Resveratrol Natural Derivatives. Under the supervision of Dr. Anil Kumar.

Project: Integrated analysis of cancer genomics data | *May 2018-July 2018*
- From the TCGA portal we collected the HNSCC. For each gene in TCGA dataset, the maximum mean gene expression was used for subsequent analysis. Under the supervision of Dr. Vibhor

Project: Machine Learning for EGFR study | *July 2017-Dec 2017*
- The aim of our project is to improve the performance of models generated by machine learning techniques for discriminating the EGFR inhibitors and non-inhibitors mean gene expression was used for subsequent analysis. Under the supervision of Dr. G.P.S. Raghava.

Project: Discovering Novel Anticancer Peptides. | *Jan 2018-April 2018*
- The present study demonstrates that features like amino acid composition, binary profile, and dipeptide can be used to train an SVM classifier that can predict cancer peptides with higher accuracy. Under the supervision of Dr. G.P.S. Raghava

Project: Improvement over PCA/DCA using Hopfield-Potts Model. | *Aug 2017- Dec 2017*
- To find RNA structure using Hopfield Model Under the supervision of Dr. Vibhor Kumar

Project: Molecular Docking Studies on Interaction of Curcumin with Human IKK-epsilon. | *Jan 2015- April 2015*
- To find the most potent inhibitor of Human IKK-epsilon using Curcumin Natural Derivatives. Under the supervision of Dr. Anil Kumar

Research Publications

- **Rohit Kumar Verma**, Kiran Bharat Lokhande, Prashant Kumar Srivastava, Ashutosh Singh, "Machine Learning-Based Identification of B4GALNT1 as a Key Player in Hepatocellular Carcinoma: A Comprehensive Bioinformatics and Structural Analysis". https://www.biorxiv.org/content/10.1101/2024.01.29.577885v1 (**First Author, Pre-print**)

- Saikat Sinha Ray, Faizaan Reza Anwar, Randeep Singh, **Rohit Kumar Verma**, Ashutosh Singh, Young-Ho Ahn, "An Integral and Multidimensional Review: Is Multilayer Perception an emerging technology in the field of water treatment and desalination processes?". (**Manuscript Submitted, Desalination**)

- Metagenomic sequence analysis of respiratory samples during severe acute respiratory infections of RSV-A among aboriginal Nicobarese tribal children in Car Nicobar Island in India. (**Manuscript Submitted**)

- **Rohit Kumar Verma**, Prashant Kumar Srivastava, Ashutosh Singh, "Investigating the role of Inhibin-beta A as a potential biomarker for gastrointestinal tract cancers through bioinformatics approaches ". (**Manuscript Submitted**)

- Metagenomic sequence analysis of respiratory samples during severe acute respiratory infections of RSV-A among aboriginal Nicobarese tribal children in Car Nicobar Island in India. (**Manuscript Submitted**)

- Saikat Sinha Ray, Pranav R.T. Peddinti, **Rohit Kumar Verma**, Harish Puppala, Byungmin Kim, Ashutosh Singh, Young-Nam Kwon, "Leveraging ChatGPT and Bard: What does it convey for water treatment, desalination and harvesting sectors?". https://doi.org/10.1016/j.desal.2023.117085 (**First Co-Author, Desalination, 9.9 IF**)

- Saikat Sinha Ray, **Rohit Kumar Verma**, Ashutosh Singh, Mahesh Ganeshapilli, Young-Nam Kwon, "A holistic review on how artificial intelligence has redefined water treatment and seawater desalination processes". https://doi.org/10.1016/j.desal.2022.116221 (**First Co-Author, Desalination, 9.9 IF**)

- Ashish Shrivastava, Kartavya Mathur, **Rohit Kumar Verma**, Sri Krishna Jayadev Magani, Ashutosh Singh, "Molecular dynamics study of tropical calcific pancreatitis (TCP) associated calcium-sensing receptor single nucleotide variation" . https://doi.org/10.3389/fmolb.2022.982831 (**Co-author, Frontiers in Molecular Biosciences Biological Modeling and Simulation, 6.133 IF**)

- Saikat Sinha Ray, **Rohit Kumar Verma**, Ashutosh Singh, Suwan Myung, You-In Park, In-Chul Kim, Hyung Kae Lee, and Young-Nam Kwon. "Exploration of time series model for predictive evaluation of long-term performance of membrane distillation desalination". https://doi.org/10.1016/j.psep.2022.01.058 (**First Co-Author, Process Safety and Environmental Protection, 7.926 IF**)

- Sharma Madhu, **Rohit Kumar Verma**, Sunil Kumar, and Vibhor Kumar. "Computational challenges in detection of cancer using cell-free DNA methylation" . https://doi.org/10.1016/j.csbj.2021.12.001 (**First Co-Author, Computational and Structural Biotechnology Journal, 7.271 IF**)

Conference and Workshops

- **Rohit Kumar Verma**, Prashant Kumar Srivastava, Ashutosh Singh, "Unravelling Prognostic Signatures in Gastric Cancer Through Machine Learning Analysis of Gene Expression Datasets". **Genomics India Conference 2024, SNIoE** (1-3 Feb 2024) **Poster**

- **Rohit Kumar Verma**, Prashant Kumar Srivastava, Ashutosh Singh, "Machine learning classification of triple negative breast cancer using transcriptomic data". **Global Breast Cancer Conference, Seoul, Korea** (27-29 April 2023) **Poster**

- **Rohit Kumar Verma**, Prashant Kumar Srivastava, Ashutosh Singh, "A machine learning approach to Transcriptomic and Methylation data revealed that B4GALNT1 might be a potential prognostic marker in Hepatocellular Carcinoma". **16th International Cancer Symposium On "Translational Chemoprevention and Brain Storming", JNU** (18 Nov 2022) **Poster**

- **Rohit Kumar Verma**, Prashant Kumar Srivastava, Ashutosh Singh, "Machine Learning approach for identification of Gastric and Colorectal cancer biomarkers using 5hmC Cell-free DNA". **Genome Informatics 2022, Welcome Connecting Science** (21-23 Sep 2022) **Poster**

- **Attended the EMBO Workshop**, "Linking molecular knowledge to cancer therapy ". **EMBO Workshop Cancer cell signaling, Cavtat, Croatia** (16–20 Sep 2022)

- **Participated**, "5th International Symposium on Bioinformatics, InSyB2021". **Bioinformatics: Back to the Fundamentals** (15-17 Dec 2021)

- **Rohit Kumar Verma**, Prashant Kumar Srivastava, Ashutosh Singh, "Identification of Gastric and Colorectal cancer biomarkers using 5hmC Cell-free DNA". **The 20th International Conference on Bioinformatics , Kunming, Yunnan, China** (6-8 Nov 2021) **Poster**

- **GitHub Hands-on Workshop**, "GitHub and IncubateIND, Shiv Nadar University". **GitHub** (16 Sep 2021)

- **Rohit Kumar Verma**,Ashish Shrivastava, Ashutosh Singh, "In Silico Models for Discovering Novel SARS-CoV-2 Peptides Using Machine Learning". **International Symposium on Bioinformatics and Artificial Intelligence in Covid-19 Era and Beyond", Amity University** (23-24 Nov 2020) **Poster**

- **Participated**, "International Conference on Data Science in Biology (ICDSB)". **Institute of Bioinformatics (IOB)** (20-22 Sep 2020)

- **Participated**, "International Webinar on COVID-19 pandemic". **Institute of Bioinformatics (IOB)** (6 Sep 2020)

- **Attended**, "International Conference on Drug Discovery, Schrodinger". **BITS Pilani Hyderabad** (29Feb-1 March 2020)

- **Rohit Kumar Verma**, Vibhor Kumar, "Cell Free DNA analysis to improve detection of diseases". **National Workshop on Big Data and Artificial Intelligence in Biotechnology and Healthcare, Amity Universitya** (21-22 Sep 2020) **Poster**

- **Rohit Kumar Verma**, Vibhor Kumar, "Computational challenges in detection of cancer using cell-free DNA methylation". **National Workshop on Computational for Biomedicine and Healthcare, IIITD** (17 Sep 2018) **Poster**

Technical Skills

Research Interest: Next Generation Sequencing Analysis, Statistical Analysis, Network analysis, Machine Learning, Comparative Genomics, Metagenomics, Molecular Dynamic, and Simulation
 Expertise Area: Experience in analysing in-house and public datasets (Next generation sequencing (NGS)), Bulk RNA-Seq: Mapping (BOWTIE, BWA, STAR) and Quantification: Downstream analysis (DESeq, edgeR, LIMMA), WES/WGS: Mapping, Downstream Analysis (GATK), Variant Annotation (ANNOVAR), Single Cell RNA-Seq: Mapping and Quantification (Cellranger) : Normalization scaling, Dimensionality reduction and Clustering (SERUAT) :Single Cell Markers (MAST) : Cell Type Annotation ¡ Integration and Analysis, DNA Methylation, Bulk ChIP/ATAC Seq, Molecular Docking, Molecular Dynamic Simulation, Ligand Based

Soft Skills: Communication,Teamwork, Decision Making, Organization
Languages: Python, R, Perl, JAVA, C/C++, MATLAB
Technologies: MATLAB, Weka, GROMACS, UCSC Genome Browser, Discovery Studio Working Knowledge on all major sequence and structural databases (TCGA, COSMIC, genomeAD, GTex, GWAS catalog, ENSEMBl)
Web Development:: HTML, CSS, JavaScript, PHP, Nginx, Google Cloud Platform and Database Management: MySQL, MS Access **Lab Skills**: Microbial Cell Culture, Culture Media Preparation, Centrifuge Handling, PCR, Gel Electrophoresis, Western Blotting, Microscopy, UV Spectroscopy

Awards and Achievements

- Lightning Talk in Genomics India Conference 2024

- InSc Young Researcher Award -2023

- Full bursary awarded by Wellcome connecting science to attend Helminth Bioinformatics Course, Khon Kaen, Thailand 21-27 May 2023

- Presented Poster in Global Breast Cancer Conference in Seoul, Korea, 27-29 April 2023. Titled "Machine learning classification of triple negative breast cancer using transcriptomic data" Travel Award

- Winner of the Process Safety and Environmental Protection best Cover "Image Process Safety and Environmental Protection, Volume 160, April 2022, Pages 1-12"

- Member of European Society for Medical Oncology (ESMO)

- Reviewer of Computational and Structural Biotechnology Journal, Elsevier

- GATE 2015, Biotechnology

Certification

- Introduction to Genomic Technologies, Coursera

- Network Analysis in Systems Biology, Coursera

- Understanding Cancer Metastasis, Coursera

- Whole genome sequencing of bacterial genomes - tools and applications, Coursera

- Genetics and Next Generation Sequencing for Bioinformatics, Udemy

- Introduction to HTML, Udemy

- PHP Development, Udemy

- Become a Good Matlab Programmer in 30 days, Udemy

References

Available on Request

Declaration

I hereby declare that all the statements made in this resume are true and correct to the best of my knowledge.
Rohit Kumar Verma
- 20/04/2024