Contact

kisna.bt.iitd@gmail.com

www.linkedin.com/in/datamaster (LinkedIn)

Top Skills

Matlab

Data Analysis

C++

Languages

English (Native or Bilingual)

Hindi (Native or Bilingual)

Publications

Re-programming DNA-binding specificity in zinc finger proteins for targeting unique address in a genome.

Probing of RNA structures in a positive sense RNA virus reveals selection pressures for structural elements

Genome-wide discovery of DEAD-box RNA helicase targets reveals RNA structural remodeling in transcription termination

Protein Distributions from a Stochastic Model of the lac Operon of E. coli with DNA Looping: Analytical solution and comparison with experiments.

Analytical Expressions and Physics for Single-Cell mRNA Distributions of the lac Operon of E. coli

Krishna Choudhary

Data Scientist | Biomedical Engineer | Every dataset has a story to tell

San Francisco Bay Area

Summary

Strong professional with solid background and experiences in Data Science, Genomics, Statistics, Stochastic and Deterministic Modeling, Computer Programming, Machine Learning, Bioprocess Engineering, Biotechnology, Chemical Product & Process Designing. Independent; collaborative and team player; able to deliver on time in fast-paced multidisciplinary environments.

Experience

University of California, San Francisco

Postdoctoral Scholar

April 2021 - Present (4 years 3 months)

San Francisco Bay Area

- Developed a novel cost-effective platform for large-scale microscopy-based CRISPR screens.

- Harmonized wet lab and computational methods to deliver high sensitivity and specificity in debarcoding pooled CRISPR perturbations.

- Manuscript in preparation.

Work involved:

- statistical methods development for image analysis.

- software development for scalable image analysis using nextflow, Python, R, and MATLAB.

- wet-lab platform development: novel lentivirus vector designs for CRISPR library, multiplexed imaging, flow cytometry, virus production, mammalian tissue culture.

Gladstone Institutes

2 years 2 months

Bioinformatician II, Bioinformatics Core

January 2020 - March 2021 (1 year 3 months)

San Francisco Bay Area

Select projects:

- Analysis of scATAC-seq, scRNA-seq, ChIP-seq datasets to understand the genetic causes underlying cardiovascular diseases
- Developed and tested a method for integrative analysis of HiC, ChIP-seq and RNA-seq datasets
- Various analyses for SARS-CoV-2 related research, e.g., studying interfering particles, gRNA evaluation for CRISPR-based diagnostics, etc.

Other contributions:

- Led team efforts to adopt Singularity/Docker containers and Nextflow workflow manager

Instructor, Gladstone/UCSF Bakar Instititute Data Science Training Program

February 2019 - March 2021 (2 years 2 months)

San Francisco Bay Area

- ~100 hrs of instruction reaching ~750-1000 graduate students, postdocs and faculty at UCSF
- Developed and instructed hands-on data analysis and statistical discussion workshops with the following titles.

1. Current practices in single-cell RNA-seq analysis
2. Introduction to RNA-seq analysis
3. Intermediate RNA-seq analysis
4. Introduction to R for data analysis
5. Intermediate R: Data visualization using ggplot2

Biostatistician I, Bioinformatics Core

February 2019 - December 2019 (11 months)

San Francisco Bay Area

Select projects:

- Exploring the mechanism of post-transcriptional regulation of the cardiac transcriptome

- Quantifying the clinical relevance of next-generation DNA sequencing for HPV genotyping
- Exploring the mechanism of HIV latency and identifying its biomarkers

Analyzed large-scale data from a variety of deep sequencing-based assays. Some of the data types I worked with are listed below.

- Whole genome sequencing data for single-nucleotide variants,
- eCLIP-seq data for RNA-protein interactions,
- bulk RNA-seq data for differentially expressed genes and alternative splicing,
- small RNA-seq for microRNA biomarker identification,
- amplicon sequencing data for HPV genotyping,
- mixed-species RNA-seq data, etc.

University of California, Davis
4 years 4 months

Teaching Assistant
September 2015 - December 2018 (3 years 4 months)
Sacramento, California, United States

- Probability and Statistics (Fall quarter, 2018)
- Big Data in Genomics (Fall Quarters, 2015 and 2016).

PhD Candidate
September 2014 - December 2018 (4 years 4 months)
Sacramento, California Area

- Worked at Computational RNA Genomics Lab.

- Thesis title: Statistical Methods and Software for Comparative Analysis of RNA structurome profiling data.

- Collaborated with domestic and international experimental labs.

- Results :

a. Developed a novel statistical method for differential RNA structurome analysis.
b. Developed quantitative and visual methods for evaluating data quality.
c. Delivered biological insights by application of tailored statistical methods and software in three separate experimental projects.
d. Designed software tools using MongoDB, Python, Bokeh, R, Shiny.

- Other duties in the lab :

a. Mentored undergraduate and high school interns.

b. Collaborated with other lab members.

c. Assisted maintenance of lab infrastructure.

Roche Molecular Systems

Oncology Bioinformatics Intern

June 2017 - August 2017 (3 months)

San Francisco Bay Area

Developed a machine learning approach for classifying germline variants found in a liquid biopsy assay.

Work involved:

- Scripting in Python, R, Bash,
- Training and testing a machine learning classifier,
- Documenting using Git, communicating results to assay development team.

EuMentis Informatics

Statistical Analyst & Market Researcher

January 2014 - August 2014 (8 months)

- Contributed ideas for sequencing data analysis in a project.
- Project aimed to diagnose drug-resistance in tuberculosis.
- Researched bioinformatics services market in India.

SupraTech Chemicals

Chemical Product & Process Designer (Entrepreneur)

August 2012 - August 2014 (2 years 1 month)

Kolkata Area, India

- Developed product formulations for metal polishes.
- Formulated plan for a low-cost manufacturing unit.
- Helped develop a marketing strategy.
- Managed supply line for raw materials and manufacturing process.
- Released first product with a good market response.

STC Jewellers

Web Development & E-commerce Consultant

January 2014 - May 2014 (5 months)

Kolkata Area, India

- Aligned bookkeeping by the manufacturing and sales divisions.

- Designed a website for the company.
- Provided consultancy on e-commerce management.

Indian Institute of Technology, Delhi
1 year 3 months

Masters Researcher
May 2012 - July 2013 (1 year 3 months)
New Delhi Area, India

- Thesis : Stochastic modeling of single-cell gene expression and analytical solutions for the lac operon of Escherichia coli.
- Published results :

a. Developed stochastic models for single-cell gene expression noise.
b. Reviewed single-molecule imaging studies.
c. Performed stochastic simulations of experiments.
d. Estimated gene expression noise from data on prokaryotic operons.

Teaching Assistant
June 2012 - May 2013 (1 year)
New Delhi, Delhi

- Advanced Biochemical Engineering (Fall semester, 2012).
- Microbial Engineering (Spring semester, 2013).

Biocon
Biopharmaceutical Production Scale-Up (Intern)
May 2011 - July 2011 (3 months)
Bangalore

- Worked in the R&D division at a cGMP certified facility.
- Interfaced between the Mammalian Cell Culture Group and the Pilot Plant.
- Designed and conducted an experiment to improve bioprocess parameters for bioreactors.
- Explained anomalies in gas transfer hindering scale-up.

Indian Institute of Technology, Delhi
Undergraduate Researcher
May 2010 - December 2010 (8 months)

- Worked in a molecular modeling lab.
- Studied molecular interactions between DNA and zinc finger nucleases.
- Helped develop a method for in silico design of nucleases for genome editing.

Education

University of California, Davis

Doctor of Philosophy (Ph.D.), Biomedical Engineering with Designated Emphasis in Biotechnology · (2014 - 2018)

Indian Institute of Technology, Delhi

B. Tech and M. Tech, Biochemical Engineering & Biotechnology with Minor specialization in Nano Science & Engineering · (2008 - 2013)