Mubashir Ali

Bioinformatics Researcher — Full-Stack Developer — AI/ML Innovator

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Combining AI and CRISPR-Cas9 to Revolutionize Genomic Research

Professional Summary

Innovative Bioinformatics Researcher and Full-Stack Developer with expertise at the intersection of Artificial Intelligence and CRISPR-Cas9 gene editing technology. Developing computational tools and algorithms to enhance precision, efficiency, and accessibility of genomic research applications. Proven track record of creating AI-driven solutions that optimize guide RNA design, predict off-target effects, and accelerate therapeutic development.

Core Competencies

Technical Expertise

- Bioinformatics Analysis & Algorithms
- CRISPR-Cas9 Guide RNA Design
- Deep Learning & Neural Networks
- Full-Stack Web Development
- Genomic Data Processing

Professional Skills

- Computational Biology Research
- Technical Content Creation
- Cross-functional Collaboration
- Problem-solving & Critical Thinking
- Research & Development Leadership

Featured Projects

Heart Disease Prediction ML

Developed and deployed a machine learning model on Azure that predicts heart disease risk with 93% accuracy. Implemented a user-friendly web interface allowing healthcare professionals to input patient data and receive instant risk assessments.

https://heart-disease-prediction-ml-apgbeff8fsfda2ey.centralindia-01.azurewebsites.net/

Protein Structure Prediction and Analysis

Created a computational pipeline for predicting protein structures using deep learning techniques. The tool analyzes amino acid sequences, predicts 3D conformations, and identifies potential binding sites for drug development applications.

https://github.com/mubashir1837/Protein-Structure-prediction-and-Analysis

Bio Data Hub (VS Code Extension)	Developed a comprehensive VS Code extension for bioinformatics researchers that streamlines the analysis and visualization of genomic data. Features include integrated CRISPR guide RNA design tools, sequence alignment capabilities, and AI-powered gene annotation. *https://marketplace.visualstudio.com/items?itemName=Mubashir-Ali.bio-data-hub*
BismillahCSS (NPM Package)	Created a utility-first CSS framework optimized for scientific and research applications. Includes specialized components for data visualization, interactive research presentations, and responsive layouts for complex scientific information. *https://www.npmjs.com/package/bismillahcss*
PK Weather (Gemini AI Integration)	Built an advanced weather application powered by Google's Gemini AI API that provides intelligent weather forecasting with natural language processing capabilities. The app offers context-aware weather insights and personalized recommendations. *https://pk-weather.vercel.app/*
Heart Disease Classifier	Implemented multiple machine learning algorithms (Random Forest, SVM, Neural Networks) to classify heart disease risk factors. Achieved 91% classification accuracy and developed an interpretable model that identifies key risk factors. *https://github.com/mubashir1837/heart-disease-classifier*
Iris Classification	Built a classification model for the Iris dataset using various machine learning techniques. The project demonstrates proficiency in data preprocessing, feature selection, model training, and evaluation metrics. *https://github.com/mubashir1837/iris_classification*
CRISPR-AI Predictor	Developed a machine learning model that predicts CRISPR-Cas9 editing efficiency and potential off-target effects. The tool helps researchers design more precise gene editing experiments by analyzing genomic sequences and providing optimization recommendations.

Professional Experience

June 2023–Present

Content Creator, *YouTube*
- ○ Developed and published 20+ educational videos on bioinformatics, CRISPR technology, and AI/ML applications in genomics
- ○ Built an audience of researchers and students interested in computational biology and gene editing
- ○ Created interactive tutorials demonstrating practical applications of AI in genomic research

October 2023–Present

Video Editor & Technical Content Specialist, *Innvo AI*, Islamabad, Pakistan
- ○ Produce high-quality technical content explaining complex AI concepts in genomics and bioinformatics
- ○ Collaborate with AI researchers to translate technical papers into engaging educational materials
- ○ Increased viewer engagement by 35% through innovative presentation techniques

June 2023–Present	**Founder & Lead Developer**, *Code With BismillAh*, Islamabad, Pakistan
	○ Founded a tech startup focused on developing innovative software solutions for computational biology
	○ Lead a team of 3 developers in creating custom web applications for research institutions
	○ Implemented agile methodologies resulting in 40% faster project delivery times
	○ Developed a bioinformatics toolkit used by 200+ students and researchers
February 2023–Present	**Technical Host & Workshop Facilitator**, *MLSA Youth Empowerment*, Islamabad, Pakistan
	○ Organized and led 15+ workshops on AI applications in genomics and computational biology
	○ Mentored 50+ students in developing technical skills for bioinformatics research
	○ Created hands-on learning materials that increased participant skill retention by 45%
September 2022–Present	**Freelance Software Developer**, *Behance & Fiverr*
	○ Developed 25+ custom web applications and data analysis solutions for research laboratories
	○ Specialized in creating bioinformatics tools, AI integrations, and genomic data visualization dashboards
	○ Maintained 4.9/5 star rating with 95% client return rate
	○ Implemented responsive designs and intuitive user interfaces for enhanced user experience

Technical Skills

Programming Languages: Python, JavaScript, TypeScript, R, SQL, HTML5, CSS3

Frameworks & Libraries: React.js, Next.js, Node.js, TensorFlow, PyTorch, Pandas, BioPython, Scikit-learn

Bioinformatics Tools: BLAST, Clustal, Ensembl, UCSC Genome Browser, Galaxy, CRISPR Design Tools

Development Tools: Git, GitHub, VS Code, WSL, Docker, Jupyter Notebooks, AWS, Azure

Database Technologies: MongoDB, PostgreSQL, Firebase, MySQL, GraphQL

Education

2024–2028 (Expected)	**Bachelor's degree in Biomathematics, Bioinformatics, and Computational Biology**, *Quaid-i-Azam University*, Islamabad
	○ Relevant coursework: Computational Genomics, Machine Learning for Bioinformatics, CRISPR Technology, Algorithm Design
	○ Research focus: Applying deep learning techniques to optimize CRISPR-Cas9 gene editing
September 2021–July 2023	**Intermediate, Medical**, *Uswa College*, Islamabad
	○ Graduated with distinction (Top 5%)
	○ Relevant coursework: Biology, Chemistry, Physics, Mathematics

Certifications

Artificial Intelligence & Machine Learning

Introduction to Artificial Intelligence (AI) *(IBM)* — January 2024

Introduction to Generative AI *(Google Cloud)* — February 2025

Data Analysis *(Coursera)* — March 2025

What is Data Science? *(IBM)* — February 2024

Bioinformatics & Computational Biology

Bioinformatics: Introduction and Methods *(Peking University)* — January 2024

Biology Meets Programming: Bioinformatics for Beginners *(UC San Diego)* — February 2025

Programming & Web Development

Foundations of Coding Full-Stack *(Microsoft)* — April 2025

Programming for Everybody (Getting Started with Python) *(University of Michigan)* — March 2025

Front-End Developer Capstone *(Meta)* — January 2025

CS302: Software Engineering *(Saylor Academy US)* — 2023

Stanford Introduction to Food and Health *(Stanford University)* — February 2024

Research Interests

- AI-driven optimization of CRISPR-Cas9 guide RNA design
- Deep learning applications in genomic data analysis
- Machine learning approaches for predicting gene editing outcomes
- Predictive modeling for disease diagnosis and treatment
- Computational tools for reducing off-target effects in gene editing

Languages

Balti: Native   **Urdu:** Full Professional   **English:** Professional Working

Online Presence & Portfolio

- **Portfolio:** portfolio-mubashir-ali.vercel.app
- **LinkedIn:** linkedin.com/in/mubashirali3
- **Company:** codewithbismillah.vercel.app
- **VS Code Extension:** Bio Data Hub
- **GitHub:** github.com/mubashir1837
- **NPM Package:** BismillahCSS