Hossein Noorollahi

Ph.D. Candidate in Molecular Genetics | Researcher in Molecular Oncology | Specialist in Bioinformatics and AI

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Address: Sa'Adat Abad, Tehran, Iran

Birth Date: 1989-09-11

Marital Status: Single

Military Service: Medical Exemption

Links

linkedin.com/in/hossein-noorollahi github.com/hossein-noorollahi youtube.com/@zis-land-learn

T.me/ggplotir

Profile Summary

Final-year Ph.D. candidate with over 10 years of expertise in bioinformatics, computational biology, and AI-driven drug design, specializing in colorectal cancer and metastasis research. Passionate about leveraging machine learning and multi-omics approaches to advance precision medicine.

Education

PhD in Molecular Genetics

Islamic Azad University (IAU)

Tehran, Iran

2019 - Present

GPA: 18.61

Comprehensive Exam Score: 18.9

Thesis: *Utilizing Artificial Intelligence (Machine Learning / Deep Learning) and Bioinformatics for Prognosis Prediction and Identification of Inhibitors in Colorectal Liver Metastasis (CLM).*

Focus: *Multi-omics integration, bioinformatics pipelines, AI-driven drug repurposing, machine learning, computational drug design and molecular docking, QSAR & Toxicity Prediction, In Vitro Assays: qRT-PCR, MTT Assay & Flow Cytometry.*

Master of Agricultural Biotechnology

National Institute of Genetic Engineering and Biotechnology (NIGEB)

Tehran, Iran

2012 - 2014

GPA: 17.04

Thesis Score: 20/20

Top Researcher in Thesis Excellence

Bachelor of Horticultural Engineering

University of Tehran

Tehran, Iran

2008 - 2012

GPA: 16

Talented Student

Professional Experience

Bioinformatics Professional Services

Freelance | Remote

Tehran, Iran

2014 - Present

Tasks and Achievements

- *Conducted advanced protein-protein interaction studies and ADMET predictions.*
- *Developed computational pipelines for biological data analysis and drug discovery.*
- *Executed molecular docking simulations using AutoDock Vina to identify novel drug candidates.*

Researcher

Islamic Azad University

Tehran, Iran

October 2019 - Present

Tasks and Achievements

- Developed computational pipelines in Python (Pandas, Scikit-learn, TensorFlow) and R to integrate and analyze multi-omics data.

Scientific and Medical Translator

Freelance | Remote

Tehran, Iran

2023 - Present

Tasks and Achievements

- *Translated scientific publications (English to Persian) in the fields of molecular biology and oncology.*

Skills

Artificial Intelligence (AI) | Machine Learning | Deep Learning | Python Programming | R Programming | Bash Scripting | Biological data analysis | Bioinformatics databases | Drug design softwares | Drug Repurposing | Molecular Docking (Vina) | Virtual Screening (PyRx) | ICDL | ADME/Tox Screening | Protein-Protein Interaction (PPI) | Microarray Analysis | Differential Expressed Analysis (DEA) | Survival Analysis | KEGG Pathway Analysis | Gene Ontology (GO) Analysis | Gene Set Enrichment Analysis (GSEA) | QSAR modeling | Multi-omics data analysis | Transcriptomics | Proteomics | Pharmacokinetics | Pharmacodynamics | GEO2R | Discovery Studio | LigPlot+ | microRNA-mRNA interaction analysis | Biomarker identification | Artificial Neural Networks (ANN) | AutoDock Tools (ADT) | AutoDock Vina | Chimera | Open Babel | Cytoscape | Supervised Learning (Regression & Classification) | Unsupervised Learning (KMeans & Hierarchical Clustering) | Oligo 7 | Primer3Plus | Pandas | Scikit-learn | Matplotlib | TensorFlow | Numpy | ggplot2

Language

English

Reading ●●●●○ | Writing ●●●○○ | Speaking ●○○○○ | Listening ●●○○○

Persian

Reading ●●●●● | Writing ●●●●● | Speaking ●●●●● | Listening ●●●●●

Publications

Manuscripts on colorectal liver metastasis (CLM) inhibitors and AI-driven drug design in CRC (Currently in preparation)

Contributors: Dr. Mitra Heydari Nasrabadi, Dr. Zarrin Minuchehr, Dr. Somayeh Ehtesham, Dr. Bijan Bambai

The research was conducted in a comprehensive manner using a wide range of bioinformatics tools, drug design, and artificial intelligence approaches. The primary objectives were as follows:

- **Identification of Key Biological Pathways, Biomarkers, and Target Molecules**
- **Computational Drug Design and Evaluation**
- **Addressing Key Questions in Colorectal Cancer and Liver Metastasis**

1. Question 1: Which compounds can effectively inhibit the adenoma-to-adenocarcinoma transition in colorectal cancer? Identifying compounds with strong binding affinity to key proteins such as APC, while ensuring high absorption rates and non-toxic profiles.

2. Question 2: What pathways and processes drive liver metastasis in colorectal cancer?

Breast Cancer Brain Metastasis (BCBM): MicroRNA-Gene Interaction

Publisher: International Biomedicine Congress

2023

Introduction to BioMercator Software and Candidate Gene Prediction Principles

Publisher: Omics Biotechnology Quarterly, Vol. 5, Issue 10

2022

The Novel Coronavirus: Technical and Diagnostic Requirements in Emerging Cities

Publisher: First National Webinar on Parand Smart City

2021

Comparative genomics of yield related MQTLs in bread wheat (Triticum aestivum L)

Publisher: 8th Iranian Bioinformatics Conference

2019

QTL meta-analysis for yield and it's components traits in bread wheat (Triticum aestivum L)

Publisher: 8th Iranian Bioinformatics Conference

2019

Identification of Candidate Genes Related to Yield Traits on Wheat Chromosome 3B Using Meta-Analysis and Synteny Analysis

Publisher: 1st International and 9th National Biotechnology Conference

2015

Meta-Analysis and Synteny Analysis of QTLs for Yield Traits on Wheat Chromosome 3A

Publisher: 1st International and 9th National Biotechnology Conference

2015

Meta-Analysis of QTLs Related to Grain Traits in the Wheat Chromosomal Group 5

Publisher: 1st International and 13th National Genetics Congress

2014

Courses & Workshops Organized

Deep learning and introduction to TensorFlow and Keras

For: eseminar online

2025

Based on the book Deep Learning with Python by Francois Chollet 2nd Edition

4 hours

Link: https://eseminar.tv/wb145154

Artificial Neural Network (ANN) in Action

For: eseminar online

2025

Based on the Book Deep Learning with Python by Francois Chollet 2nd Edition

2 hours

Link: https://eseminar.tv/wb145255

Molecular Docking with AutoDock Vina | Clinical and project-based

For: Maktabkhooneh (Top Online Learning Platform in Iran)

2025

3 hours

Link: https://mktb.me/jw10/

Clinical Drug Repurposing | Project-Based

For: Maktabkhooneh (Top Online Learning Platform in Iran)

2025

2 hours

Link: https://mktb.me/smt0/

Artificial Intelligence with a Python Flavor: A Course on Designing Diabetes Risk Prediction Models with Machine Learning

For: eseminar online

2024

2 hours

Link: https://eseminar.tv/wb144850

MicroRNA-mRNA interaction analysis course

For: eseminar online

2023

2 hours

Link: https://eseminar.tv/wb122936

Comprehensive course in molecular biology and genetics

For: eseminar online

2024

4 hours

Link: https://eseminar.tv/wb144658

Protein-Protein Interaction Analysis and Biomarker Discovery

For: eseminar online

2023

2 hours

Link: https://eseminar.tv/wb133367

Introduction to MicroRNAs

For: eseminar online

2023

1 hour

Link: https://eseminar.tv/wb125984

Bioinformatics Data Analysis: Primer Design Using Oligo 7 and Primer3 Plus

For: Islamic Azad University, Parand Branch

2022

2 hours

Drug Design Strategies

For: Islamic Azad University, Parand Branch

2022

2 hours

Introduction to Bioinformatics

For: Islamic Azad University, Parand Branch

2022

2 hours

Honors

Member of Young Researchers and Elite Club of Iran (ID: 4022162980014)

2020

Top Researcher Award | Khayyam Excellence in Thesis Awards

2018

Best Speaker Award | 13th International & First National Genetics Congress

2014

Talented Student Recognition | University of Tehran

2011

References

References available upon request.

Teaching

Lecturer

Islamic Azad University, Tehran, Iran

October 2022 - Present

Courses Taught:

- *Molecular Biology*
- *Molecular Genetics*
- *Bioinformatics*
- *Cell Biology*
- *Laboratory Techniques in Molecular Biology*

Seminars and Congress Participation

The Application of Bioinformatics and Artificial Intelligence in Life Sciences and Medical Sciences Symposium

2024

Institution: Bioinformatics Academy of Iran & Biologists Students Union

International Webinar: Cancer from Laboratory to Clinic

2021

Institution: Royan Institute

6th Symposium on Genetics, Gene Therapy, and Cell Therapy

2021

Institution: Stem Cell and Development Technologies Headquarters

COVID-19 Congress

2021

Institution: Union of Iranian Biology Scientific Associations

3rd Iranian CRISPR Symposium

2021

Institution: Iranian Genetics Society

Genetic Counseling Seminar: Disability Prevention Methods

2020

Institution: Iranian Genetics Society & Iranian Genetics Foundation

Preimplantation Genetic Testing Webinar: PGT-A & PGT-M

2020

Institution: Royan Institute

Biotechnological Solutions and COVID-19 Challenges Webinar

2019

Institution: Iranian Biotechnology Society

Presentations

AI Applications in Biology

2024

Islamic Azad University

Breast Cancer Brain Metastasis (BCBM): MicroRNA-Gene Interaction

2024

Delivered in English

7th International Biomedicine Congress

Identification of Candidate Genes Related to Yield Traits on Wheat Chromosome 3B Using Meta-Analysis and Synteny Analysis

2015

1st International and 9th National Biotechnology Conference

Meta-Analysis and Synteny Analysis of QTLs for Yield Traits on Wheat Chromosome 3A

2015

1st International and 9th National Biotechnology Conference

QTL Meta-Analysis for Yield and Its Component Traits in Bread Wheat (Triticum aestivum L)

2014

1st International and 13th National Genetics Congress

Book Translation

Oncology at a glance

2025

Publisher: Biotechnology Publications

Translated into Persian

Link: https://www.biotechpub.com/book?p=%DA%A9%D8%AA%D8%A7%D8%A8-%D8%B3%D8%B1%D8%B7%D8%A7%D9%86-%D8%B4%D9%86%D8%A7%D8%B3%DB%8C-%D8%AF%D8%B1-%DB%8C%DA%A9-%D9%86%DA%AF%D8%A7%D9%87

Certificates (Courses & Workshops)

Regenerative Medicine

August 2024 – January 2025

Institution: Union of Iranian Biologists in cooperation with Iranian Academy of Regenerative Medicine

Total Hours: 104 hours (52 sessions)

32 hours: Cell Therapy & Regenerative Medicine

22 hours: Immunotherapy

24 hours: Tissue Engineering

26 hours: Gene Therapy

Machine Learning with Python

May, 2024

Link: https://coursera.org/share/4e52ff9b1772dff421484376a77c8566

Institution: IBM (Coursera)

- *Instructor: Joseph Santarcangelo*
- *Duration: 20 hours*
- *Grade Achieved: 80%*

Supervised Machine Learning: Regression and Classification

January, 2024

Link: https://coursera.org/share/43f29d95830eebcc2be08a5d54fb9ba7

Institution: DeepLearning.AI & Stanford University (Coursera)

- *Instructor: Andrew Ng*
- *Duration: 33 hours*
- *Grade Achieved: 99.66%*

Genetic Engineering and Modern Biotechnology

November 2023 – August 2024

Institution: The Biologists Union of Iran

Sessions: 63

Python Programming Course

July, 2023

Issued by: Technical and Vocational College of Shahid Mehran, Rasht — Iran Technical & Vocational Training Organization

Duration: 20 hours

Certificate Number: 240/30/23/195

Winter School on Protein Bioinformatics and Vaccine Design

2023

Institution: *Jundishapur University, Ahvaz*

Duration: 26 hours

SDS-PAGE Workshop

2023

Institution: Iranian Biotechnology Society & National Molecular Medicine Network

Introduction to Machine Learning Workshop

2023

Institution: National Institute of Genetic Engineering and Biotechnology (NIGEB) & USERN

Molecular Genetics and Genetic Engineering Techniques

2022

Techniques: PCR, Electrophoresis, DNA Extraction, and Cloning

Institution: National Institute of Genetic Engineering and Biotechnology (NIGEB)

Duration: 16 hours

ICDL Certification (7 Computer Skills)

2022

Institution: Ministry of Science, Research, and Technology, University of Qom

Duration: 130 hours

Score: 84/100

Drug Design Workshop

2022

Institution: University of Tehran Bioinformatics Camp

Certification: OxfordCert Universal Academy (Registration Number: LMZ98910405256)

Duration: 6 hours

Integrated Transcriptomic and Methylomic Cancer Data Analysis Workshop Using R

2022

Institution: Iranian Bioinformatics Society

Western Blotting Workshop

2022

Institution: Gonabad University of Medical Sciences

DNA Extraction and PCR Techniques Workshop

2022

Institution: University of Yazd

Molecular Dynamics Workshop

2022

Institution: University of Tehran Bioinformatics Camp

Certification: OxfordCert Universal Academy (Registration Number: LMZ9891040526)

Duration: 6 hours

Medical Diagnostic Laboratory Skills Workshop

2022

Institution: Iranian Biology Association

Next-Generation Sequencing and Gene Expression Data Analysis (TCGA) Workshop

2022

Institution: University of Yazd

Genetic Counseling Fundamentals Workshop

2022

Institution: Dr. Farhood Foundation & Union of Iranian Biology Associations

Molecular Docking Workshop

2022

Institution: University of Tehran Bioinformatics Camp

Certification: OxfordCert Universal Academy (Registration Number: LMZ98910405218)

Duration: 6 hours

Cellular Biology Course (Lodish Textbook)

2021

Institution: Royan Institute

Duration: 40 hours

Protein Biotechnology Workshop

2021

Institution: University of Tehran Life Sciences Student Association

Laboratory Biosafety Principles Workshop

2021

Institution: Pasteur Institute of Iran & National Molecular Medicine Network

Gene Expression Data Analysis Using GEO2R Workshop

2021

Institution: Iranian Genetics Society

Gene Therapy with CRISPR Workshop

2021

Institution: University of Yazd

Artificial Intelligence in Biotechnology Workshop

2021

Institution: Kharazmi University

Mutation Detection Tools Workshop (Bioinformatics Approach)

2021

Institution: Iranian Genetics Society

CRISPR and Guide RNA Design Workshop

2021

Institution: Iranian Genetics Society

mRNA Technology in Medicine Workshop

2021

Institution: Union of Iranian Biology Scientific Associations

Gene Cloning Workshop

2021

Institution: Pasteur Institute of Iran & National Molecular Medicine Network

Protein-Protein Interaction Analysis for Drug Design Workshop

2021

Institution: University of Yazd

Cell and Gene Therapy Workshop

2021

Institution: Iranian Biotechnology Society

SnapGene Gene Cloning Simulation Workshop

2021

Institution: Iranian Genetics Society

Medical Statistics Workshop (STATA Software)

2021

Institution: Shiraz University of Medical Sciences Research Association

Duration: 10 hours

Proteomics Methods Workshop

2020

Institution: Sari University Scientific Association of Plant Genetics

Duration: 6 hours

Introductory Bioinformatics Workshop

2020

Institution: Razi University Scientific Association of Plant Genetics

Duration: 10 hours

Single-Cell RNA-seq Data Analysis Workshop

2020

Institution: Royan Institute

Duration: 8 hours

Next-Generation Sequencing (NGS) Workshop

2020

Institution: 4th International Biomedicine Congress

Duration: 9 hours

Manuscript Submission and Tracking Workshop

2020

Institution: Shahid Chamran University of Ahvaz Life Sciences Student Association

Gene Bank Database Introduction Workshop

2020

Institution: Shahid Chamran University of Ahvaz

ArrayCGH and NGS Workshop

2020

Institution: Royan Institute

Real-Time PCR and Gene Expression Studies Workshop

2020

Institution: Razi University Plant Genetics Association

R Programming Software Workshop

2020

Institution: Shahid Beheshti University Biology Student Association

Real-Time PCR Methods and Data Analysis Workshop

2020

Institution: Iranian Biochemistry Society & Tehran University of Medical Sciences

Scientific Writing Workshop

2020

Institution: Shahid Chamran University of Ahvaz Life Sciences Student Association

Flow Cytometry Workshop

2020

Institution: Iranian Biochemistry Society & Tehran University of Medical Sciences

Drug Design Workshop: QSAR and Pharmacophore Modeling

2020

Institution: Institute for Research in Fundamental Sciences (IPM) & Iranian Bioinformatics Society

Cell Culture Workshop

2020

Institution: University of Yazd

Primer Design Using Oligo 7 Workshop

2020

Institution: University of Yazd

Additional Information

Exceptional Resilience & Perseverance

Demonstrated ability to thrive and achieve goals while navigating a severe physical-motor disability and resource-limited environments.

Strategic & Goal-Oriented Mindset (ENTJ)

Strong capabilities in planning, decision-making, and driving projects to completion.

Rapid & Proactive Learner

Enthusiastic about acquiring new skills in bioinformatics, AI, and computational biology to address cutting-edge scientific questions.

Advanced Problem-Solving

Adept at overcoming obstacles with persistence, adaptability, and an innovative approach.

Collaborative Spirit

Passionate about working in interdisciplinary teams to bridge computational biology with clinical applications.

Work Ethic

A dedicated and adaptable professional who thrives in dynamic environments, delivers high-quality results, and is always open to feedback for improvement.

Personal Interests

Committed to a lifestyle of continuous growth through daily exercise, healthy nutrition, meditation, and lifelong learning.

Availability

Ready to start immediately and committed to providing regular progress reports.

Languages

English (Proficient in research, reading and writing; actively improving spoken fluency).

Severe Physical-Motor Disability

Member, Welfare Organization of Tehran Province & Iranian Dystrophy Society.

2011

Due to being diagnosed with GNE myopathy at the age of 20, I have adapted to my condition and maintain the ability to perform daily tasks independently, utilizing a walker and wheelchair when necessary.

Membership

Member of Iranian Bioinformatics Society

2016

Member of Iranian Biotechnology Society

2015

Member of Iranian Genetics Society

2014

Research Interests

Artificial Intelligence in Biology

Bioinformatics and Omics

Drug Discovery and Design

Cancer Research & Metastasis

Research Objectives

Molecular Oncology and Drug Design

2019-Present

This research utilized advanced bioinformatics, drug design, and AI techniques to tackle key challenges in colorectal cancer progression and liver metastasis. The objectives included:

Biological Pathways and Biomarkers:

- Identifying critical pathways and biomarkers involved in the adenoma-to-adenocarcinoma transition and liver metastasis, focusing on therapeutic targets through transcriptomic profiling and drug repurposing strategies.

Drug Design and Evaluation:

- Designing candidate drugs via molecular docking and virtual screening, evaluating ADMET properties, and applying machine learning models (e.g., QSAR) for toxicity and pharmacokinetics analysis.

Key Questions in Cancer Research:

- Developing inhibitors for the adenoma-to-adenocarcinoma transition by targeting proteins like APC.
- Identifying pathways driving liver metastasis and corresponding therapeutic targets using personalized medicine.
- Investigating compounds to prevent liver metastasis affecting 50% of colorectal cancer patients.

This study bridges computational tools and personalized medicine to advance cancer treatment and drug discovery.