Narges SangaraniPour

+989359697336 nargessangaranip@gmail.com
Linkedin Github Tehran, Iran

Education

Shahid Beheshti University of Medical Sciences Tehran, Iran
Medical student *Oct. 2021 – Present*

Work Experience

Prepaire Labs Jan. 2023 – Sept. 2024
Research and Development Scientist / Bioinformatician *Abu Dhabi, United Arab Emirates*

- Developed a deep neural network for the Clicktromics App, optimizing protein sequences in siglec receptors to enhance the design of antibody-drug conjugates, which are crucial for targeted cancer therapies.
- Optimized mRNA sequences in Prepaire's innovative vaccine development tool, streamlining RNA translation for next-generation vaccine pipelines. Here is the company website: Prepaire Labs.

Zharfa Inc Jan. 2022 – Feb. 2023
Research and Development Scientist / Bioinformatician *Tehran, Iran*

- Designed a 5' UTR sequence optimization tool with applications for the mRNA cancer vaccine pipeline, optimizing mRNA translation through the development of a transformer model to predict mean ribosome load (MRL) and using genetic algorithms to select optimized UTRs.
- Conducted research on mRNA translation dynamics, predicted mRNA protein expression, and developed out-of-distribution expression profiles using deep learning, driving advancements in mRNA design and functionality.

Research Experience

Human Genome Sequencing Center, Baylor College of Medicine [GitHub] Aug. 2024 – Present
Bioinformatician *Houston, TX, USA*

- Contributed to the identification and cataloging of AMR genes by aligning CARD genes with the Logan database, utilizing its unitigs and contigs for accurate and sensitive detection across large-scale datasets, Collaborated with Dr. Sina Majidian and Prof. Daniel Agustinho.
- Performed spatial analyses on the distribution of resistance determinants across diverse environments and host organisms, and developed interactive visualizations to present findings, enhancing the interpretability and accessibility of complex genomic information.

Department of Bioinformatics, I.B.B, University of Tehran [GitHub] Mar. 2024 – Jul. 2024
Internship *Tehran, Iran*

- Developed a CNN-based model to predict peptide-HLA binding affinity, achieving high Recall (93.2%) and AUC-scores (97.5%), critical metrics for model performance, Collaborated with Dr. Kaveh Kavousi.
- Conducted research on HLA binding prediction with applications in vaccine design and immunotherapy, advancing computational solutions in personalized medicine.

Publication

The Sixth Annual Structural Variant and Pangenomics Hackathon at BCM [Submitted]

- Farhang Jaryani, **Narges SangaraniPour**,..., Daniel P. Agustinho, Sina Majidian, Fritz J Sedlazeck

Conference Abstracts

SangaraniPour N, KarimiNejad M. *"VarDrug: Predicting Variant-Drug Interactions to Enhance Personalized Drug Safety."* International Congress of Cancer Genomics (CGC2024), Tehran, Iran. Winner of Best Poster Award.

SangaraniPour N, Kavousi K. *"Deep Convolutional Neural Network Model for Predicting MHC I Binding Affinity in Peptide-Based Therapeutics."* International Conference on Bioinformatics, Mazandaran, Iran.

Honors and Awards

National Center for Biotechnology Information (NCBI) Codeathon - Project Winner [GitHub Link]

Baylor College of Medicine and DNAnexus Hackathon 2024 - Project Winner

Gold Medal, National Stem Cell and Regenerative Medicine Olympiad - July 2020

Certification and Courses

mRNAs as Medicines - Moderna

Annual Cell Modeling Online Summer School and Hackathon - University of Washington

Data Analyst with Python - Datacamp

Machine Learning with Python - Datacamp

Deep Learning with Python - Datacamp

Skills & Interests

Programming Languages: Python, R, Bash

Laboratory Skills: DNA Extraction, RNA Extraction, Polymerase Chain Reaction (PCR), RT-PCR, Agarose Gel Electrophoresis, Bacterial Cell Culture, ELISA

Data Science and Machine Learning: Deep Learning (CNN, RNN, Transformers, GNN with PyTorch, Classical Machine Learning (Linear Models, RandomForest, XGBoost), Data Analysis (Pandas, Numpy), Data Visualization (Matplotlib, Seaborn)

Software & Tools: Git, Jupyter, PyTorch, TensorFlow, LaTeX

Languages

English: Full Working Proficiency, **Persian:** Native

References

Dr. Sina Majidian — Postdoctoral Fellow, Johns Hopkins University
Email: sina.majidian@bcm.edu

Prof. Daniel Agustinho — Assistant Professor, Baylor College of Medicine
Email: daniel.agustinho@bcm.edu

Dr. Kaveh Kavousi — Department of Bioinformatics, I.B.B, University of Tehran
Email: kkavousi@ut.ac.ir