Masoud Poorghaffar Aghdam

Lojman 33. No. 1 Bilkent University, Ankara, Turkey Masoud.live
m.poorghaffar@bilkent.edu.tr linkedin.com/in/MasoudAghdam github.com/MPCL5

Education

Bilkent University September 2023 - July 2025 (Expected)
M.Sc. of Computer Engineering (GPA: 3.75 / 4.00) *Ankara, Turkey*

- **Relevant Coursework:** Deep Learning, Machine Learning, Bioinformatics
- **Advisor:** Dr. Ercument Cicek

University of Tabriz September 2018 - July 2022
B.Sc. of Computer Engineering (GPA: 3.33 / 4.00) *Tabriz, Iran*

- **Relevant Coursework:** Data Structures and Algorithms (C++), Data Mining, Fundamentals & Applications of Artificial Intelligence
- **Advisor:** Dr. Jafar Tanha

National Organization for Development of Exceptional Talents (Sampad) July 2018
Post Graduate Diploma (PGD) in Mathematics & Physics (GPA: 3.77 / 4.00) *Bonab, Iran*

Research Interests

- **Computational Biology** • **Data Privacy** • **Deep Learning** • **Machine Learning**

Publications

A Reinforcement Learning-based Approach for Dynamic Privacy Protection in Genomic Data Sharing Beacons

Poorghaffar Aghdam M, *Shukueian Tabrizi S, Ayoz K, Ayday E, Sav S, Cicek AE.*
bioRxiv 2024-10 · https://doi.org/10.1101/2024.10.28.620587

A reinforcement learning-based approach to enhance privacy in the Beacon Project, protecting genomic data from membership inference attacks. Designed a dynamic defense mechanism that adapts in real-time to evolving threats, distinguishing between legitimate users and attackers.

Research Projects

Contributor - Generated Data with Fake Privacy: Hidden Dangers of Fine-tuning Large Language Models on Generated Data
Submitted to USENIX Conference, Status: Under Revision

- Added and conducted new fine-tuning methods.
- Fine-tuned additional LLMs.

Main Contributor - Deep Clustering Variational Mixtures of ODEs for Inferring Cellular Gene Expression Dynamics

- Introduced a new model capable of clustering cells among different cohorts based on their RNA velocity by adapting Variational Deep Embedding (VaDE) in VeloVAE model.
- Stabilized training process.

Main Contributor - Enhancing details of images generated from VAE based clustering methods using Diffusional Models

- Used Variational Deep Embedding model for clustering.
- Utilized a Diffusional Model to capture and add random details to the generated images.

Teaching Experience

Bilkent University

*Teaching Assistant - **CS201** Algorithms and Programming I* *Fall 2024*
*Teaching Assistant - **CS201** Fundamental Structures of Computer Science I* *Fall 2023, Spring 2024*
*Teaching Assistant - **CS464** Introduction to Machine Learning* *Spring 2024*
*Teaching Assistant - **CS102** Algorithms and Programming II* *Fall 2023*

University of Tabriz

Teaching Assistant - Theory of Languages and Automata *Spring 2022*
Teaching Assistant - Algorithms *Spring 2021*
Teaching Assistant - Data Structures *Fall 2020*

Academic Service

Research in Computational Molecular Biology (***RECOMB***) Conference *Reviewer, 2024*
Intelligent Systems for Molecular Biology (***ISMB***) Conference *Reviewer, 2024*
Research in Computational Molecular Biology (***RECOMB***) Conference *Reviewer, 2023*

Technical Skills

Languages: C++, C#, Java, Python, Java Script, R

Frameworks: PyTorch, TensorFlow, Theano (Familiar), ASP Dot net core, Nest JS, Next JS, React JS

Tools: Git, Docker, Linux (Mostly Debian base), Trello, Microsoft Azure, WSL

Concepts: Operating System, Caching, Encryption, Decryption, Machine Learning, Neural Networks, Database Normalization, Agile Methodology, Cloud Computing

Main Models: Convolutional Networks, Variational Auto Encoders, Generative Adversarial Networks, Diffusion Models, Transformers (No practical Experience)

Databases: MySQL, Microsoft SQL Server, Mongo DB, PostgreSQL

Work Experience

Raychat March 2022 - May 2023

Software Engineer *Tabriz, Iran*

- Refactored main core based on micro-service objectives.
- Introduced and implemented an algorithm, utilizing cloud services, to make the service robust against unexpected load increase.
- Used Nest JS and Express JS for development.
- Worked with NATS Message broker, Redis, and API gateways.

Landin July 2021 - November 2021

Frond-End Developer *Tehran, Iran*

- Developed and implemented a lazy loading approach for jQuery inspired by Webpack's lazy loading.
- Developed a user panel in React JS capable of live landing page building.
- Developed an optimized landing page builder based on jQuery.

Arkatech April 2020 - July 2021

Full Stack Developer *Tabriz, Iran*

- Passed my internship.
- Used React Js and multiple front-end libraries to develop admin panels.
- Developed various e-commerce websites using Next JS, enabling high performance by leveraging static generation and server-side rendering.

Social Engagements

Vice-President: Computer Engineering Association of Tabriz University

Volunteer: Radio Geek - A university radio talking about hot technology topics.