Farhad Aman

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EDUCATION

Amirkabir University of Technology, Bachelor of Science in computer engineering — Sep 2020 – Present

- **GPA: 18.12 / 20 (3.89/4)** (Transcript)
- **Thesis:** Energy-aware transformers under the supervision of Professor Momtazi

Hasheminejad High School (Exceptional Talents), Diploma of mathematics and physics — Sep 2014 – Sep 2020

- **GPA: 19.35 / 20**

SELECTED COURSES

- **Algorithm Design** 20 / 20
- **Data Structures and Algorithms** 20 / 20
- **Information Retrieval** 19.55 / 20
- **Artificial Intelligence** 17.5 / 20
- **Applied Linear Algebra** 17.08 / 20
- **Engineering Statistics** 18.35 / 20
- **Discrete Mathematics** 19.5 / 20
- **Principles of Cloud Computing** 20 / 20
- **Operating Systems** 19.69 / 20
- **Advanced Programming** 20 / 20
- **Principles of Database Design** 18.5 / 20
- **Microprocessor and Assembly Language** 20 / 20
- **Software Engineering II** 20 / 20
- **Web Programming** 20 / 20
- **Logic Circuits** 19.9 / 20
- **Fundamentals of Computer Programming** 20 / 20
- **Computer Architecture** 17.97 / 20

RESEARCH & WORK EXPERIENCE

Research Assistant (NLP Lab), Amirkabir University of Technology — Sep 2023 – Present

- I contributed to optimizing **transformer** models for reduced energy consumption under Professor Momtazi's supervision. My research focuses on improving the energy efficiency of **NLP** models by developing techniques that balance computational complexity and resource use, making transformers more sustainable for deployment in resource-constrained environments.

Research and Development Engineer, Snapp — Apr 2022 – Present

- **Estimated Time of Arrival (ETA) Optimization**: At Snapp, the leading ride-hailing platform in Iran with **over 50 million users** and **more than 5 million rides per day**, I work under Sadegh Etemad's supervision to improve the accuracy of the **estimated time of arrival (ETA)** predictions. Using advanced **machine learning** models, including **Transformers**, **XGBoost**, **neural networks**, and **routing engines**, my role focuses on developing and deploying models with **MLOps** tools and software solutions to enhance real-time ETA predictions, contributing to more efficient and reliable operations at scale.

TEACHING EXPERIENCE

- **Data Structures and Algorithms**
  Instructor: Prof. Shirali — Sep 2024
- **Microprocessor and Assembly Language**
  Instructor: Prof. Farbeh — Sep 2024
- **Software Engineering**
  Instructor: Prof. Ghorbanali — Sep 2024
- **Software Engineering**
  Instructor: Prof. Gohari — Sep 2024
- **Data Mining**
  Instructor: Prof. Nazerfard — Feb 2024
- **Data Structures and Algorithms**
  Instructor: Prof. Shirali — Feb 2024
- **Linear Algebra**
  Instructor: Prof. Mazlaghani — Feb 2024
- **Computer Networks**
  Instructor: Prof. Ziaeetabar — Feb 2024
- **Artificial Intelligence**
  Instructor: Prof. Javanmardi — Feb 2024
- **Web Programming**
  Instructor: Prof. Alvani — Feb 2024
- **Operating Systems**
  Instructor: Prof. Javadi — Sep 2023
- **Algorithm Design**
  Instructor: Prof. Javanmardi — Sep 2023
- **Data Structures**
  Instructor: Prof. Shirali — Sep 2023

- **Artificial Intelligence**
  Instructor: Prof. Javanmardi — Sep 2023
- **Advanced Programming**
  Instructor: Prof. Ziaeetabar — Sep 2023
- **Microprocessor and Assembly Language**
  Instructor: Prof. Farbeh — Sep 2023
- **Operating Systems**
  Instructor: Prof. Javadi — Feb 2023
- **Algorithm Design**
  Instructor: Prof. Shirali — Feb 2023
- **Data Structures and Algorithms**
  Instructor: Prof. Shirali — Feb 2023
- **Advanced Programming**
  Instructor: Prof. Roustaei — Sep 2022
- **Advanced Programming**
  Instructor: Profs. Zeinali and Kalbasi — Feb 2022
- **Programming Fundamentals**
  Instructor: Prof. Zeinali — Sep 2021

PROJECTS

- **ANN Using Numpy**
  Implemented an **Artificial Neural Network (ANN)** architecture from scratch using only **Numpy**, focusing on foundational machine learning techniques without relying on external libraries.
- **Genetic Algorithm Using Numpy**
  Implemented a **Genetic Algorithm** from scratch using **Numpy**, focused on solving optimization problems.
- **Pacman AI**
  Developed an AI agent to play Pacman using various approaches such as **Reinforcement Learning (RL)**, **Bayesian Networks**, **Adversarial Search**, and other search algorithms to solve different tasks.
- **XV6 RISC-V**
  Extended the **XV6** operating system on the **RISC-V** architecture by implementing a new **scheduler** and adding support for **multithreading**.
- **Nostradamus (ETA Prediction Model)**
  Developed and deployed a machine learning model for **Estimated Time of Arrival (ETA)** optimization at **Snapp**, the leading ride-hailing platform in Iran with over **50 million users** and more than **5 million rides** per day. The model, utilizing advanced techniques such as **Transformers**, **XGBoost**, **neural networks**, and **routing engines**, enhances real-time ETA predictions, leading to more efficient and reliable operations at scale.

HONORS & AWARDS

- **Ranked 220th/155K:** In the national university entrance exam among **155 thousand** students (2020)
- **Ranked 60th:** In the 29th Iran's **National Olympiad in Informatics**

TECHNICAL SKILLS

- **Programming Languages**: Python, C, C++, Java, Golang, Scala
- **Data Science and Machine Learning Frameworks**: TensorFlow, PyTorch, Keras, Scikit-learn, NumPy, Pandas, Matplotlib, XGBoost, LightGBM, Apache Spark, DVC
- **Databases and Data Storage**: PostgreSQL, MySQL, Cassandra, ksqlDB, Redis, ClickHouse, SQLite, ElasticSearch
- **MLOps and DataOps Tools**: ONNX, Kedro, MLflow, Airflow, S3, Hadoop, Logstash
- **Cloud and Containerization**: Docker, Kubernetes, Helm, OpenShift, Nginx, Apache Kafka, Kafka Streams, ArgoCD
- **CI/CD and DevOps**: Git, GitLab, Jenkins, Prometheus, Grafana, Kibana, Terraform
- **API Development and Testing Tools**: FastAPI, OpenAPI, Postman, Insomnia, Swagger
- **Messaging and Event Streaming**: NATS, RabbitMQ, Apache Kafka
- **Testing and Automation**: Selenium

EXTRACURRICULAR & VOLUNTEERING ACTIVITIES

Head of Linux and Open Festival 2024, Amirkabir University of Technology — Feb 2024

- Organized and led one of the most prestigious academic events focused on Linux, featuring workshops, presentations, and networking opportunities for students and professionals.

Technical Head of Amirkabir Artificial Intelligence Summer Summit 2023, Amirkabir University of Technology — Sep 2023

- Responsible for preparing the website of the event.

Technical Head of ICPC 2023, Amirkabir University of Technology Oct 2023

- Managed judge servers and participant systems for the ICPC contest.

Technical Staff of ICPC 2022, Amirkabir University of Technology Apr 2023

- Prepared website and managed systems for judges and participants during the ICPC contest.

Author of Advanced Programming Workshop, Amirkabir University of Technology Jul 2021 – Jan 2022

- Developed and prepared content for the Advanced Programming Workshop.

ONLINE COURSES

- **Natural Language Processing Specialization**, DeepLearning.AI on Coursera (Courses: NLP with Classification and Vector Spaces, NLP with Probabilistic Models, NLP with Sequence Models, NLP with Attention Models)
- **Machine Learning Specialization**, Stanford University on Coursera

REFERENCES

Available upon request.