

Siavash Barqi-Janiar

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Highlights and Qualifications

- Data Scientist / ML engineer with over **4 years** of hands-on experience in programming.
 - Master in **Python, SQL, Apache Services, C/C++, Java, and R**.
 - Proficient in designing **ETL pipelines with automated workflows** to process data from different complex resources, and populating results in enterprise data warehouses.
 - Expertise in supervised, unsupervised, reinforcement, and deep learning models, with **5 research publications**.
 - Hands-on Experience with **Large Language Models (LLM)** and **fine-tuning** them.
 - Experienced with Google Cloud Platform (**GCP**) services such as APIs, clusters, containerization, virtual machines, data processing tools, etc.
 - Familiar with automatic scaling and management tools such as **Google Kubernetes Engine (GKE)** and **Managed Instance Groups (MIGs)**.
 - Experienced in text data preprocessing, including **cleansing, tokenization, and word embedding**.
 - Skilled in information systems strategy, planning, and development, with expertise in analyzing customer needs, requirements, and competitive landscape for effective project management.
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Experience

Junior Data Engineer | Docma

Jan. 2024 – Present

- Designed an **ETL pipeline** from 0 to 100% including a Command Line Interface (CLI), data preprocessing, alpha-lag-decay process, and exporting the results, predicting future sales attribution.
- **Automated 80%** of data workflows and batch processes and minimized the need for manual intervention.
- Enabled importing and exporting data from/to four different sources: **local, API, AWS, database**.
- Developed and maintained database architectures and schemas to optimize query performance.
- Created and maintained comprehensive documentation for data engineering processes and systems, leading to a faster onboarding of new team members.

Research Assistant | York University

Sep. 2021 – Apr. 2023

- Proposed a **transfer learning (TL)** method based on **feature extraction** to predict jamming patterns in a communication network. Reduced the time complexity of the primary model by **30 times**.
- Realized a comprehensive **XAI** method comprising **pattern recognition** and **rule learning** for network security. Improved the **transparency** of the model compared to the benchmark explainable models **by 17%**, whilst having a **32% less error rate**.

Research Assistant | Amirkabir University

Jan. 2021 – Jun. 2021

- Leveraged an **online actor-critic** algorithm for access problems in heterogeneous networks. Achieved **95% throughput** in the network marked as the **highest possible performance**.
 - Optimized the resource allocation system in distributed computer networks with prioritized packets using ML/AI, which increased the throughput of the wireless system **by approximately 15%**.
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Education

York University | MS Electrical Engineering and Computer Science

2023

Field of Study: AI and Machine Learning

GPA: 3.8 / 4.0

Amirkabir University | BS Electrical Engineering

2021

Focus: Telecom Engineering, AI, and Machine Learning

GPA: 3.4 / 4.0

Projects [Link]

Real-Time Stock Market Data Pipeline:

- Implemented a robust **ETL process** to ingest, transform, and store real-time data from stock exchanges.
- Developed a **RESTful API** using Flask and HTML for accessing real-time stock market data.
- Utilized **Apache Kafka** to ensure reliable and scalable data streaming and processing.
- Visualized the output of the data pipeline (moving average) using **Matplotlib**, enhancing data comprehension and decision-making.
- Utilized **PostgreSQL (PSQL)** for efficient data storage and retrieval, optimizing database queries and reducing data retrieval times by 50%.

RAG based chatbot: [https://siaschatbot.streamlit.app/]

- Developed a **RAG-based web app** capable of retrieving information from any webpage, and answering questions based on webpage information. Simulating a conversational chatbot working for any webpage.
- Used **Langchain** and **OpenAI's GPT-3.5 LLM model** for the implementation.

ML Based Electric Vehicles (EV) Charging Management in Smart Cities Domain:

- Utilized **TensorFlow 2** and a **Docker container** for building an **evolutionary calculation** model to minimize EV charging costs based on the city electricity price movements.
- Received recognition for its innovative approach, winning an **\$8000** prize for its contribution to sustainable transportation and smart city initiatives.

Spam Email Detector:

- Fine-tuned an **LLM** for spam email detection, prompt engineered it using **LangChain**.
 - Wrote a customized prompt code and used **GCP** for GPU-based training and evaluation.
 - Achieved 20% improvement in accuracy over the benchmark.
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Skills

- **Programming Languages:** Python, SQL, C/C++, Java, R, HTML, JavaScript, C#.
 - **Data Analysis Frameworks:** Pandas, Spark, PostgreSQL (SQL), Psycopg2, Apache Kafka, Apache Spark, Regex, Boto3, AWS Wrangler, Snowflake.
 - **LLM / ML Frameworks:** Sci-kit Learn, LLAMA, LangChain, HuggingFace, Chroma, PyTorch, Tensorflow, Keras, Spark MLlib.
 - **Cloud Tools:** AWS, Docker, Google Compute Engine, Google Cloud Storage.
 - **API and Visualization Tools:** Flask, Unicorn, Postman, Streamlit, Kivy, Matplotlib, Git, \LaTeX , Qt Design.
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Publications [Link]

- S. B. Janiar, P. Wang, "Intelligent Anti-jamming based on Deep Reinforcement Learning and Transfer Learning," *IEEE Transactions on Vehicular Technology*, 2023.
 - Barqi Janiar S, Pourahmadi V, "Deep-reinforcement learning for fair distributed dynamic spectrum access in priority buffered heterogeneous wireless networks," *IET Commun.* 2021;19. <https://doi.org/10.1049/cmu2.12098>
 - S. B. Janiar, P. Wang, "A transfer learning approach based on integrated feature extractor for anti-jamming in wireless networks," *IEEE PIMRC, Toronto*, 2023.
 - S. B. Janiar, Xian Lu, P. Wang, "Explainable Reinforcement Learning for Wireless Security at the Physical Layer: A Survey," *IEEE Transactions on Wireless Communications*, 2022.
 - S. B. Janiar and V. Pourahmadi, "Deep-Reinforcement Learning for Fair Distributed Dynamic Spectrum Access in Wireless Networks," *2021 IEEE 18th Annual Consumer Communications & Networking Conference (CCNC)*, 2021, pp. 1-4, doi: 10.1109/CCNC49032.2021.9369536.
 - S. B. Janiar, A. Eckford, "The Theory and Applications of Coded Modulation in Digital Communications: A Survey", *York University*, Dec. 2021.
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