

Mohammad Hassan Shiri

Analytical Researcher | Complex Systems Enthusiast | Data Scientist

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Profile

An inquisitive Physics undergraduate at Sharif University with a deep-seated passion for modeling complex systems and leveraging data to uncover foundational insights. My academic journey has been driven by a desire to find connections between disparate fields, from modeling macroeconomic phenomena using physics principles to designing distributed networks. Having successfully applied my analytical skills to enhance operational efficiency in business settings, I am now eager to transition into a dedicated research role where I can contribute to solving more fundamental scientific and technical challenges.

Research & Academic Projects

Academic Research Proposal: UISSF

University of Isfahan

2021

- Authored a comprehensive technical proposal for implementing a distributed network based on existing hardware at the University of Isfahan.
- The proposed system was designed to create a foundational infrastructure for advanced academic applications, including a campus-wide indoor positioning system (IPS) and augmented reality (AR) experiences for students.
- This project demonstrates strong capabilities in system design, technical writing, and forward-thinking research application.

Applied Research: Business Process Modeling

Family-Owned Businesses (Restaurant, Bakery)

2021 – Present

- Conducted quantitative analysis of operational workflows in two distinct business environments.
- Utilized Python for data modeling to identify systemic bottlenecks and inefficiencies, leading to a **30% increase in productivity**.
- This experience highlights a practical ability to apply research methodologies to analyze and improve complex real-world systems.

Project Libertad: Social Impact Engineering

Personal Project

2024 – Present

- Engineered and currently maintain a mail service providing resilient, open internet access for hundreds of students during periods of network restriction in Iran.
- This project showcases practical software engineering skills and a commitment to leveraging technology to solve critical real-world problems.

Early Career Experience

Commerce Expert

2021 – 2023

Sakht Kushan Matin & Kavosh Energy Pasargad

- Gained foundational experience in a family-owned enterprise, managing international trade logistics, automating financial documentation, and handling business correspondence.

Education

B.Sc. in Physics 2023 – Present

Sharif University of Technology

Tehran, Iran **Studied Computer**

Eng.

2019 – 2022

University of Isfahan

Isfahan, Iran

Research Interests

- Complex Systems Modeling
- Econophysics Sociophysics
- Computational Data Analysis
- Distributed Networks
- Machine Learning Applications

Presented several talks at Sharif University on modeling macroeconomic systems with concepts from physics.

Technical Skills

- **Data Science:** Python (pandas, NumPy, Matplotlib, Scikit-learn), Power BI, Advanced Excel
- **Programming:** C/C++, Java, Backend (FastAPI, Django), Web Scraping
- **Tools & DevOps:** Git, GitHub, Docker, Postman, Linux/Bash
- **Domain Knowledge:** Market Research, International Trade, Business Process Modeling

Languages

- **Persian:** Native
- **English:** Fluent (TTC Certified)
- **French:** Professional Proficiency
- **Spanish:** Professional Proficiency
- **Russian:** Intermediate Proficiency

Leadership

Secretary, Scientific Assoc. 2023 – Present

Physics Faculty, Sharif University

Founder, 'Tea & Physics' Assoc.

2023 – Present

Sharif University