Amirreza Sokhankhosh

📞 431-293-6515 ✉ amirreza.skhn@gmail.com in LinkedIn 🐙 GitHub 💼 Portfolio

HIGHLIGHT OF RELEVANT SKILLS

- **Data Science & Statistical Modeling:** Master of Science in Computer Science graduate with expertise in **causal inference**, **regression models**, **hypothesis testing**, **fairness analysis**, and **predictive modeling**, applied to real-world domains such as **smart buildings** and **transportation**.

- **Data Wrangling & Visualization:** Skilled in cleaning, transforming, and analyzing large datasets using **Python (Pandas, NumPy)** and **R**, with expertise in **Matplotlib**, **Seaborn**, and other visualization tools for **EDA** and reporting. Experienced in building **data dashboards** using **React** and **Tableau**.

- **Machine Learning & Forecasting:** Hands-on experience in **time series forecasting**, **classification**, **NLP**, and **LLM-powered applications** using **Scikit-learn**, **PyTorch**, **TensorFlow**, and **Hugging Face Transformers**.

- **Databases, Geospatial & Data Systems:** Proficient in **SQL** and **NoSQL** databases (**PostgreSQL, MongoDB, MySQL, Supabase**), including **schema design**, **efficient querying**, integrating **analytics pipelines** with **production data systems**, and working with **geographical/spatial data** in **PostGIS** and **Tableau**.

- **Cloud, DevOps & Production:** Hands-on with **AWS**, **Docker**, **Kubernetes**, and **CI/CD pipelines**, with experience building **robust data pipelines** and **scalable APIs**.

- **Collaboration & Applied Research:** Experienced in academic and industry settings, applying **Agile methodologies**, contributing to **cross-functional teams**, and communicating **data-driven insights** to stakeholders.

EXPERIENCE

University of Manitoba
Graduate Research Assistant

Sep 2023 – Jul 2025
Winnipeg, Canada

- Designed/developed four novel distributed AI architectures, emphasizing secure, scalable & efficient **system design and modular API development** (TensorFlow, PyTorch, Hyperledger Fabric, Express.js/Flask).

- Achieved significant system optimizations: reduced communication overhead by **85.2%** & increased fault tolerance by **62.7%**, demonstrating expertise in building reliable AI systems.

- Authored/contributed to multiple research publications in top-tier **IEEE** venues.

Bobo App Ltd.
Full Stack Developer Intern

May 2024 – Aug 2024
Winnipeg, Canada

- Collaborated with a team at **MILA** in developing an efficient **chatbot** responsible for **customer service**.

- Accelerated product development by designing and implementing **RESTful APIs** using Supabase and **PostgreSQL**, enhancing backend functionality and data management.

- Automated data integration by developing a Python script to convert CSV data into executable SQL, significantly streamlining **database population**.

- Ensured seamless **full-stack integration** through close collaboration with the front-end team to align API specifications with user interface requirements.

- Contributed to **agile** workflow efficiency by utilizing the Atlassian suite (**Jira, Confluence**) for task management, documentation, and team coordination.

K.N. Toosi University of Technology
Research Assistant

Jun 2021 – Aug 2022

- Led an undergraduate research team to investigate the fairness of solar panel funding in Switzerland, culminating in key analytical findings.

- Executed comprehensive **data collection and cleaning** of over **10GB of raw data** from diverse government portals, ensuring high data integrity for advanced analysis.

- Leveraged advanced **causal inference** techniques in **R** to analyze complex datasets, producing detailed analytical reports that quantified and highlighted significant subsidy biases.

Nadin Soft (Sadr Group Company)   Jul 2020 – Dec 2020
Full-stack Developer Intern

- Drove the successful completion of a critical internal project, addressing key deficiencies in **API security, authentication, and data modeling** for production deployment.

- Developed robust RESTful APIs with AdonisJS and **Express.js**, implementing **JWT authentication** to secure user access and enable core application functionalities.

- Designed and implemented highly accurate MySQL database schemas for precise tracking and management of employee working and non-working hours, foundational for the project's business logic.

- **Deployed** fully functional features to the **live production server** and created thorough Swagger API documentation, facilitating seamless internal integration and knowledge transfer.

- Contributed to an Agile Scrum development team by actively tracking and managing personal tasks within ClickUp, ensuring efficient progress and clear communication within sprints and **CI/CD pipelines**.

PROJECTS

Fair Allocation of Solar Panel Funding — Switzerland | *R, Causal Inference* | Link
- Conducted an empirical study analyzing fairness in government subsidies for solar panel installations across Swiss.

- Collected and aggregated socioeconomic and environmental datasets (income, household energy data, subsidies).

- Applied causal inference methods (Matching, IPTW, Marginal Structural Models) to assess whether income biases influenced debt burden.

- Implemented statistical models in R, achieving balanced covariates and deriving causal relationships between income levels and subsidy fairness.

Digital Twin – Smart Building Forecasting | *Python, PyTorch Forecasting, PyTorch Lightning, SQL* | Link
- Built a predictive model for CO_2, humidity, and temperature across 76 IoT-enabled rooms.

- Designed multivariate time series pipelines leveraging Temporal Fusion Transformer (TFT) and federated learning

- Improved environmental forecasting accuracy and scalability for smart infrastructure analytics.

Paper Summarizer | *Hugging Face Transformers, Ollama, OCR, LLMs* | Link
- Developed an end-to-end text data pipeline combining OCR, PDF parsing, and NLP.

- Implemented summarization and entity extraction using Hugging Face models to synthesize key insights from academic papers.

- Demonstrated practical application of unstructured data analysis for information retrieval and knowledge management.

EDUCATION

University of Manitoba   Sep 2023 – Aug 2025
Master of Science in Computer Science (GPA: 4.4 / 4.5)   *Winnipeg, Canada*
- **Relevant Coursework:** Security & Privacy, Deep Generative Modeling, Data Mining: A+

K.N. Toosi University of Technology   Sep 2018 – Feb 2023
Bachelor of Science in Computer Engineering

TECHNICAL SKILLS

Data Science & Analytics: Python (Pandas, NumPy, SciPy, Scikit-learn), R, SQL, Matplotlib, Seaborn, Plotly.
Machine Learning & Forecasting: Time Series (Temporal Fusion Transformer, ARIMA, LSTM), NLP (Transformers, Hugging Face), TensorFlow, PyTorch, Keras, Model Evaluation, MLOps (Docker, Kubernetes).
Databases & Data Systems: PostgreSQL, MySQL, MongoDB, Supabase, Redis.
Programming Languages: Python, R, SQL, C++, Java, JavaScript, TypeScript, Node.js.
Cloud & DevOps: AWS, Docker, Kubernetes, Git, GitHub Actions, CI/CD, Linux.
Web Frameworks: *Back-end*: Flask, Django, Express.js, NestJS. *Front-end*: React, Tailwind.
Tools & Methodologies: Jira, Confluence, Swagger, Agile, Scrum.