Ali Mokhtari

[Website](#) | [LinkedIn](#) | [GitHub](#) | [Google Scholar](#)

Location: Vancouver, Canada
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TECH SKILLS

Lang/Tools	:	Python, C++, SQL, Bash, Wolfram, Git, GitHub, Tableau, Excel
Libs	:	TensorFlow, PyTorch, Keras, sci-kit-learn, NumPy, SciPy, Pandas, Quspin, Qiskit
Cloud/DB	:	AWS, Azure, MySQL, PostgreSQL

AI, QUANTUM AND MATHEMATICAL EXPERTISE

DL/ML	:	FCNN, CNN, RNN, LSTM, Transformers, Decision Trees, Regression, Classification
Quantum	:	Quantum Information and Computation, Quantum Fault Tolerance, Quantum Many-body Physics
Math/Stats	:	Linear Algebra, Statistical Analysis, Differential Analysis, Monte Carlo analysis, Bayesian statistics

EDUCATION

Simon Fraser University
*Ph.D. in theoretical and computational Physics, **GPA: 4/4***
Vancouver, Canada
Sep 2018 – Dec 2023

Tarbiat Modares University
*Master of science in theoretical physics, **GPA: 3.8/4***
Tehran, Iran
Sep 2013 – Jun 16

ShahreKord University
*Bachelor of electrical and electronics engineering, **GPA: 3.3/4***
ShahreKord, Iran
Sep 2009 – Sep 2013

EXPERIENCE

Ph.D. Researcher,
Simon Fraser University
Sep 2018 – Present
Vancouver, Canada

- **Developing Mathematical Models:** Devised a comprehensive mathematical framework to explore both equilibrium and non-equilibrium dynamics of ultra-cold atoms in optical lattices, with and without disorder conditions.
- **High-Performance Computing:** Engineered a robust C++ application capable of simulating out-of-equilibrium dynamics in disordered systems. Utilized high-performance computing clusters to handle computationally intensive tasks.
- **Data Analysis and Visualization:** Leveraged Python's advanced data analysis and visualization libraries to interpret and visualize the extensive data generated by the C++ simulations.
- **Massive Data Generation:** Employed the exact-diagonalization technique via the Quspin library and parallel computing to generate large datasets, aiming to train Deep Neural Networks effectively.
- **Deep Learning for Quantum Systems:** Designed, trained, optimized, and fine-tuned Deep Neural Networks to investigate the information propagation characteristics in disordered quantum systems.

PROJECTS

Economy Forecasting using LLMs (Under construction)

- Generating both human-crafted and AI-generated prompts for the fine-tuning of LLMs.
- Specializing and fine-tuning Llama 2 as a component in a multi-faceted system for Forex and market index analysis.
- Combining sentiment analysis, statistical algorithms, and mathematical models with LLM outcomes to assist in short-term Forex and index prediction.

CERTIFICATIONS

- Deep Learning specialization, (First 4 courses), **(DeepLearning.AI, Coursera)**.
- Machine learning specialization, (3 courses), **(DeepLearning.AI, Coursera)**.