Ali Mokhtari

Website | LinkedIn | GitHub | Google Scholar

Location: Vancouver, Canada
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Tech Skills

Lang	:	Python (preferred), C++, SQL, Bash, Wolfram
Libs	:	TensorFlow, PyTorch, Keras, scikit-learn, NumPy, SciPy, Pandas, Matplotlib
Cloud/DB	:	AWS, Azure, MySQL, PostgreSQL
Tools	:	Git, GitHub, Tableau, Excel

AI and Mathematical Expertise

DL/ML	:	FCNN, CNN, RNN, LSTM, Transformers, Decision Trees, Regression, Classification
Math/Stats	:	Linear Algebra, Statistical Analysis, Differential Analysis, Monte Carlo analysis

Education

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

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

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

Experience

Ph.D. Researcher, — Sep 2018 – Present
Simon Fraser University — *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)**.