

**Abilities:**

- *Strong understanding of*
  - a. Python libraries: pandas, numpy, scipy, statsmodels, pyfolio, scikit-learn, xgboost and
  - b. Aspects of finance, mathematics, probability, statistics and machine learning required for building and automated trading systems.
  - c. Trading systems, math models and algorithms for simulation, backtesting and validation.
- *Problem solving attitude*
- *New market indices and new trading algorithms development*

**Languages:**

- *Developer:* Python, R, R-Markdown, Java, Excel VBA.
- *Platforms:* Jupyter Lab, Spyder, R Studio, JetBrains IntelliJ IDE, Excel.

**Python Algorithms presently developed and used:**

- *Moving n-Skewness Trading Strategy and Money Management*
- *Markowitz Efficient Portfolio Generator and Money Management*
- *Markov Chain Based Overnight Strategy - Stock Picker*
- *Market Condition Index – Market Entry Condition Monitoring System*
- *Portfolio Rebalance Tool*
- *Best Trade Hours Histogram Generator*

**Financial Education/Courses:**

- “Certificate of Excellence in Executive Programme in Algorithmic Trading (EPAT)” by Quantinsti – [certificate link](#)
- “Portfolio Management Fundamentals” by CFI – [certificate link](#)

**Degrees:**

- **Bachelor of Science:** Electrical-Electronics Engineering, Middle East Technical University, GY:1991
- **Master of Science:** Electrical-Electronics Engineering, Middle East Technical University, GY:1999
- **Doctor of Philosophy:** Materials Science and Engineering, Gebze Technical University, EGY: 2024 (PhD thesis ongoing)
- **Master of Science:** Financial Engineering, World Quant University, EGY: 2024, (4 courses to go)

**Awards:**

- *Invented, implemented and backtested “**Moving n-Skewness Trading Strategy**” in Python as EPAT Final Project. Approved by instructor Mr. Nitin Aggarwal of Quantinsti. Yielded far better results than classical moving average crossover strategies. This project won the **Best Project Award** in 18 October 2023 of Batch 52 – [certificate link](#)*

**Intended Position:**

- *Quant Analyst, Quant Developer or similar*

**Finished Projects:**

WQU COURSE	Assignments Completed and Submitted to WQU	PYTHON CODE Developed	SYNOPSIS
MScFE 560 Financial Markets	2008 Global Financial Crisis Explained	No	Market conditions that caused the crisis, global effects of these primary causes, the response of policymakers and regulators, roles and effects within the housing market, who benefited from rising housing costs? Systemic risks in the housing market, Basel Accord.
	Basel III and Similar Regulations after 2008 Global Crisis	No	Intended effect of the Basel Regulations, comparison of intended effects and advantages-disadvantages of the regulation, would ethics training have helped? Was the crisis due to individual behavior or systemic risk?
	Mortgage Backed Securities (MBS)	No	Use of MBS as a financial asset, role of MBS in Global Financial Crisis of 2008.
MScFE 600 Financial Data	Three Mortgage Loan Plans	Yes	Marketing Piece for explanation of 3 different loans and their benefits, work included excel files and loan payment calculations
	Python Tutorials on Data frames, Dictionaries and Lists	Yes	Python code assisted tutorial of 3 parts including dataframes, dictionaries and lists
	Modern Portfolio Theory Application and Python Demonstration of Volatility Minimization using Asset Pairs	Yes	Detail analysis and optimum portfolio generation with asset in BIST100
MScFE 610 Econometrics	Returns and Volatility Forecasting by GARCH model	Yes	Ordinary Regression Models generation for TSLA Returns of selected asset by multicollinearity mitigation, GARCH volatility model generation for TSLA
	Analysis of Autocorrelation, Heteroscedasticity, Non-Stationarity and Over-Reliance on Normality For Time Series Data	Yes	Analyze stock data for their autocorrelation, heteroscedasticity, non-stationarity and over-reliance on normality. Code and run tests for detecting each phenomenon and suggested directions for mitigation or treatment of each phenomenon to either overcome its adverse effects or making advantage of each, on the way to estimating future values of returns, volatility etc. of the data.
	Modeling Non-Stationarity and Finding Equilibrium	Yes	Stationarity, Non stationarity of trends, ADF, KPSS, AIC testing
MScFE 620 Derivatives	Binomial and Trinomial Tree Model Pricing for European options	Yes	Binomial and Trinomial Tree Model Pricing for European options
	Black Scholes and Montecarlo Model Pricing	Yes	Black Scholes and Montecarlo Model Pricing for European options
	Heston, Merton and Monte Carlo Simulation Pricing for American Options	Yes	Heston Merton and Monte Carlo Simulation Pricing for American Options
MScFE 622 Stochastic Modeling	Pricing Asian ATM Options By Calibrating Heston, Bates and Cox–Ingersoll–Ross Models	Yes	Pricing Asian ATM Options By Calibrating Heston, Bates and Cox–Ingersoll–Ross Models
	Estimating a Markov-Regime Switching Model for the VIX Index	Yes	Estimating a Markov-Regime Switching Model for the VIX Index
	Risk-Aware Upper Confidence Bound Algorithm Implementation	Yes	Risk-Aware Upper Confidence Bound Algorithm Implementation