

Headline: [A Beginners Guide To Algorithmic & Quantitative Trading](#)

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A Beginners Guide To Algorithmic & Quantitative Trading

If this expanding domain excites you, now is the time to start learning!

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In a move that seems pretty interesting, giants like Citibank have started training their employees in the programming language Python. In case you're wondering, 'What has a multinational corporation like Citibank got to do with Programming?' This is a move to train their employees in programming to improve their overall banking operations including trading and investment banking.

Algorithms and Algorithmic Trading

Algorithms can be thought of as a to-do list which gives you a certain output based on the inputs. eg. A recipe that gives you a delicious dish based on certain ingredients. Algorithms are a set of instructions or codes written to perform the desired action and are usually written by programmers.

Fact: The words 'algorithm' and 'algorism' come from the name of a Persian mathematician, Al-Khwārizmī

From the 'open outcry' in a 'pit' of an exchange building, to trading over the telephones, then to computerised trading where orders were directly executed online to today's trading environment where programs and automatic softwares trade globally in microseconds - trading has surely come a long way.

While Algorithmic Trading & Quantitative Trading words are often intermittently used, there lies a difference between the two. Algorithmic trading, simply put, is the use of Algorithms to perform trading, irrespective of the type of trading strategy. Quantitative Trading on the other hand is about using statistical methodologies to create trading strategies to generate alpha, as well as for better execution.

Algorithmic Trading: Why?

The Algorithmic Trading helps traders & institutions in achieve the following to some extent:

- Faster & better execution
- Reduced impact cost
- Manage larger portfolios
- Less prone to errors
- Reduced emotional trading & results in higher discipline
- Ability to trade more types of strategies

Algorithmic & Quantitative Trading: Skills Needed

Skills like knowledge of financial markets, financial computing, statistics & econometrics and market microstructure are helpful while foraying into algorithmic Trading domain.

Algorithmic Trading: Market Participants

Algorithmic Trading is practised globally by many participants like Short Term traders, Sell Side participants, Mid Frequency Traders, Long Term Investors (generally for execution), etc. Most of the market makers provide liquidity through algorithmic trading systems. This liquidity is in-turn used by funds & financial institutions, as well as retail investors. In Indian markets, almost all arbitrage trades, which helps in keeping market efficient, are executed through algorithmic trading tools only.

Algorithmic Trading: Job Profiles

Various types of job profiles are offered in the market, like Trading Strategist, Quant Analyst, Quant Researcher, Trader, Data Scientist, to name a few. Based on the company, job roles and areas of expertise, the job profiles may vary from company to company.

How does Algorithmic Trading work?

A layman in this domain might say that one would create programs, upload them to trading systems to execute orders, and voila! You're a trader. But, had it only been that easy. This is done by creating your own algorithms or programs based on your skills as mentioned above. Yes, it is math oriented.

Being an individual trader, having your own trading desk or working for an MNC have their own perks, but one needs to start by learning and grasping the right knowledge with dedication & discipline.

Who can be an Algorithmic Trader?

One can become an Algorithmic Trader with proper knowledge, guidance and some of the above mentioned skills.

For a Programmer, his knowledge of programming could be an asset, although he would need to learn about financial markets and statistics.

In case of a Trader aspiring to get into this domain, his knowledge of Trading would be helpful. Though, he would still have to learn about Programming.

While there would also be others who aspire to be Algorithmic Traders, but have neither the experience of trading nor do they possess programming skills - for them, it would be best to start learning about it.

How can one learn Algorithmic Trading?

One can learn algorithmic trading through various ways, like:

- e-books available online
- Self-help content on the internet
- YouTube videos
- Notes from friends
- Various online courses

One question that I've been asked repeatedly by non-programmer traders trying to make a transition into algorithmic trading side, can't I hire a programmer to code my strategies instead of learning it myself? You can do that, but it would be better if one can code their own trading strategies as that helps you in maintaining your intellectual property, as well as makes the whole strategy development process faster by removing potential communication gaps. So, if this expanding domain excites you, now is the time to start learning!

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