

# WE ARE HIRING.

## JOB DESCRIPTION

### Choose your own title – Stellenbosch

Be it “Chief Problem Solver”, “Investment Data Scientist” or “Data Mining Analyst” if you like. We are looking for an enthusiastic self-starter with an entrepreneurial analytical flair and a solid background in coding.

The successful candidate will work side by side with the Chief Investment Officer developing, managing as well as deploying existing and new trading and investment algorithms. The chosen candidate will be a key member of our investment team, contributing with his/her problem solving, innovation, questioning and automation skills to streamline the deployment of our investment algorithms. This technical role would be highly suitable for a software developer with a deep understanding of the key principles of software development, object-orientation, multi-threading, software optimisation and memory management. A solid knowledge of R programming is essential, while any knowledge of C/C++/ Java and SQL would be advantageous.

### Key responsibilities

- Developing, automating and deploying investment algorithms
- Data mining
- Data base management
- Developing new code and designing new architecture to extend functionality
- Back testing of algorithms
- Finding/developing new trading algos.

### Qualifications & Experience

- The typical candidate would have a strong undergraduate degree in the sciences, such as Maths, Statistics, Computer Science or Engineering.
- While we acknowledge that a strong academic background would typically be advantageous to this position, we will consider anyone who is able to meet our challenge mentioned below in the “How to Apply” section, regardless of academic background. (We are more interested in what you can do)

### Skills

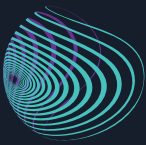
- Strong analysis skills
- Ability to translate basic business requirements into system solutions
- Excellent problem solving and troubleshooting abilities
- Good coding standards and experience
- Ability to work both independently and within a team to deliver a solution
- ***A good knowledge of the R programming environment is essential.***

### Behaviour

- Desire to work in a flexible role with a broad exposure to investments and technology
- Ability to adapt and deliver in a dynamic environment
- High quality work standards
- Proactive, enthusiastic and innovative by nature
- Ability to work under pressure, multi-task and meet deadlines
- Self-driven, well organized and take ownership of tasks
- Team player who is able to communicate well with ability to share information and knowledge
- Excellent communication and interpersonal skills
- Interest in investment management industry
- Actively keeping abreast of new technologies

### Remuneration

- The position will carry a basic package which is negotiable, but offers excellent longer term performance based rewards for candidates who prove themselves. (***bonus and share options***)



## HOW TO APPLY

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### In order to apply you need to do 3 things:

- Please forward your CV to [info@nmrql.com](mailto:info@nmrql.com) (No more than 1 page – provide references)
- Please provide an introduction letter telling us a bit more about yourself (highlights you might feel are important) (No more than 2 pages)
- NB: Write a program (algorithm) in R which forecasts the Equity market or a Stock or a group of stocks, five days into the future. Send us your algorithm/script together with a short write-up (R Markdown) on what the algo does and how it works. For more information please refer to the “Rules” below.
- Closing Date: 1 August 2015

### Rules

There are not many rules! The challenge is to impress us with your innovative thinking and coding skills. However, we acknowledge that there will be some questions we haven't thought of. So, we will make them up where they are not addressed below. (so pls email if you have questions)

#### Therefore:

1. The code must be written in R
2. (Using R Markdown will help for the explanation and presentation)
3. You can use intraday, daily or weekly closing prices.
4. You can forecast the return (preferable) or the price.
5. It can be any local or international stock.
6. If you don't have access to a data provider such as Reuters or Bloomberg, you can consider the free data source <http://archive.ics.uci.edu/ml/datasets/ISTANBUL+STOCK+EXCHANGE> for stock price data to test your algo on. If you don't use this data set, please provide us with the data set you used.  
*Source (Lichman, M. (2013). UCI Machine Learning Repository [http://archive.ics.uci.edu/ml]. Irvine, CA: University of California, School of Information and Computer Science)*
7. You can include either technical indicators imputed from the price data and/or fundamental data of the specific stock or market index, or you can develop your own quantitative indicators to use in the prediction. (be innovative)
8. It would be good to build in some evaluation of how good your algo is performing/predicting, such as ROC curves.
9. Make sure your algo does not have a forward looking bias!
10. **Most importantly have fun..!**

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#### See the following websites for more help

<http://cran.r-project.org/>  
<http://www.investopedia.com/university/technical/>  
<http://www.quantmod.com/>  
<http://cran.r-project.org/web/packages/TTR/TTR.pdf>  
[http://en.wikipedia.org/wiki/Receiver\\_operating\\_characteristic](http://en.wikipedia.org/wiki/Receiver_operating_characteristic)  
[http://en.wikibooks.org/wiki/Category:Data\\_Mining\\_Algorithms\\_In\\_R](http://en.wikibooks.org/wiki/Category:Data_Mining_Algorithms_In_R)

