

# BABAK MAHDAVI-DAMGHANI

## Quantitative Researcher & PhD Candidate

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## EXPERIENCES (MID TO SENIOR LEVEL)

### Founder, Quantitative Analyst & Proprietary trader

#### EQRC Limited

📅 February 2014 – current    📍 London, UK

- Built marketing [platform](#) to advertise consulting work,
- Signed multiple senior contracts (£300K per year) as Empiric on-site client at LCH, EquityClear, Forexclear & SwapClear,
- Parametrized implied volatility, its liquidity model as well as built a price to vol fetcher for normal and log normal underliers,
- Proposed a move from Log Normal to Normal assumption for STIRs options Margining Methodology,
- Assessed external vendors as it relates to data quality,
- Discussed the pros and cons of Monte Carlo vs Historical VaR margining methodology,
- Experienced high level management tasks such as restructuring, budgeting, recruiting, building Gantt chart, working directly with heads of businesses, COO & CRO,
- Invited speaker to several international conferences [[1,2](#), more [here](#)],
- Offered permanent position but declined in order to continue “PhD candidate + contractor plan”.
- Researched ways to create [alternative sources of income](#)
- Advised the [Oxford Algorithmic Trading Program](#),
- Built a Risk Parity cryptocurrency strategy which is now being traded automatically via a Python code I wrote for the Poloniex exchange
- Wrote [reports](#) of traded strategies with 30% return in the 1st year,
- Researched brokering options including APIs for algorithmic trading,
- Provided Neural Networks tutoring to Hedge Fund Portfolio Manager,
- Placed Junior Quants at various places,

### Cross Asset Risk Quantitative Analytics

#### Credit Suisse Securities Limited

📅 June 2011 – February 2014    📍 London, UK

- Performed extensive work on implied volatility modeling including but not limited to the formalization of the de-arbitraging methodology in the context of a point-wise and parametrization process,
- Used Nelson-Siegel-Svensson in order to interpolate yield curve,
- Built slides and presented work to senior level management and various Front Office teams,
- Recruited and interviewed for the various Quant teams,
- Participated in internal training programs in business & management,
- Initiated algorithmic trading group discussions for commodities,
- Achieved “Exceeded Expectations” in the internal year-end review,
- Left to pursue “PhD candidate + contractor plan”.

## EXECUTIVE SUMMARY

“Hands-on” Managing Director level Quantitative Analyst with a PhD in Machine Learning from a [top tier university](#) & [department](#) with 10 years of experience in diverse roles of quantitative nature across functions, trading frequencies, locations & asset classes.

## CONTEXT

Aiming for a career in Quantitative Research, I was admitted to do my PhD in Oxford in 2006 upon the successful completion of my MSc. Lacking new interesting ideas and practice as an independent researcher, I decided to come up with my own “rotational plan” consisting of studying other closely related fields through certificates as well as gaining industry experience before accepting the PhD offer. Because the prospect of doing a PhD on a student income alone was insufficient to pay the mortgage and because full time employment was not authorized, I created [EQRC](#) in order to start a legal platform to do part time work during my PhD years.

## EDUCATION

### DPhil ~ Machine Learning

#### University of Oxford

📅 2016 - 2019    📍 Oxford

### CPGS Signal Processing

#### University of Cambridge

📅 2008 - 2010    📍 Cambridge

### M1 Applied Mathematics

#### École Polytechnique

📅 2006 - 2007    📍 Paris

### MSc ~ Computer Science

#### University of Oxford

📅 2005 - 2006    📍 Oxford

### BSc ~ Financial Engineering & Math

#### University of Pennsylvania

📅 2001 - 2005    📍 Philadelphia

## EXPERIENCES (JUNIOR LEVEL)

### Exotic Derivatives Trader & Structurer Rotational Program

Citigroup Global Markets

May 2010 – April 2011

London, UK

- Managed two books consisting of Commodities Futures, Exotic and Vanilla options, with a daily VAR of \$200K and a Sharpe ratio of 2.4,
- Participated in daily trading tasks: booking, P&L checking, hedging, position monitoring etc ...
- Built a systematic trading Decision Support System with live positions,
- Worked for the Quantitative Investment Strategies Cross Asset Group to design the FX carry overlay strategy for EM vs. G10 and its marketing material for upper level management,
- Passed various FCA Regulations to become FCA approved,
- Left after the second rotation to pursue “rotational plan” elsewhere since the 3rd rotation was meant to be in sales which I was not interested in, and favored instead, a Quantitative Analyst position at Credit Suisse.

### Strategy Quantitative Analyst Intern

Cantab Capital Partners

June 2008 – September 2008

Cambridge, UK

- Tested and implemented the Goldman Sachs FX carry strategy as well as mitigated risk drawdowns inherent to the carry strategy by suggesting a behavioral finance driven parallel overlay strategy,
- Experienced various other techniques such as index cointegration,
- Experienced strategy reverse engineering using P&L replication,
- Offered permanent role but refused to continue “rotational plan”.

### High Frequency Quantitative Analyst Intern

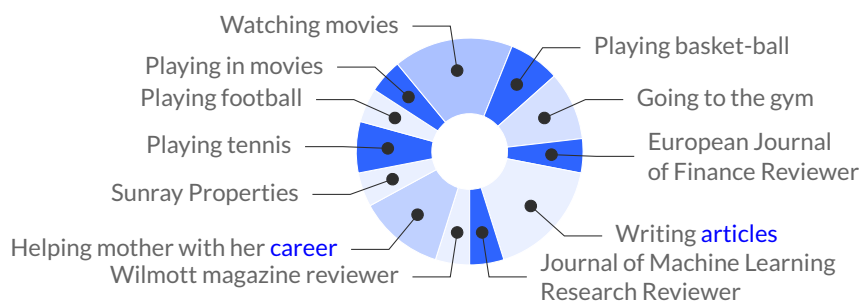
Société Générale,

April 2007 – October 2007

Paris, France

- Implemented a comparative analysis software, which explored the contribution of a monitored Artificial Neural Network within working-strategies involving Multi Linear Regressions,
- Calibrated an Autoregressive Conditional Duration model,
- Calibrated the Ornstein-Uhlenbeck model in the context of pairs trading,
- Offered permanent role but refused to continue “rotational plan”.

## HOBBIES



## DISTINCTIONS



### University of Oxford

DTC Studentship Full award maintenance & fees (University fees + College Fees + a generous stipend for the 3 years). MSc dissertation & Qualifiers judged excellent by jury.



### École Polytechnique

“Bourse d’Excellence” (merit based full scholarship with no “pantoufle” to reimburse). “M1” passed with honors.



### University of Cambridge

Admitted to the PhD program.



### University of Pennsylvania

Invited to six different Honor Societies and other academic prizes.

## PUBLICATIONS

Complete updated list of publications is uploaded [here](#) and the presentations for the [Cointelation](#), [IVP](#) or [HFTE](#) are hyperlinked in blue. Please let me know if you are unable to download the relevant articles.

## LANGUAGES

English	●●●●●
French	●●●●●
Farsi	●●●●●
Spanish	●●●●●
German	●●●●●
Latin	●●●●●

Latex	●●●●●
Python	●●●●●
Matlab	●●●●●
VBA	●●●●●
C++	●●●●●
Microsoft Office	●●●●●
Java	●●●●●
R	●●●●●

## REFEREES

A professor from one of the [top 5 schools of @ Machine Learning & Quantitative Finance](#)  
✉ available upon request

A well known writer & public figure of [@ Mathematical & Quantitative Finance](#)  
✉ available upon request