**Education/Qualifications:**

1996 – 1999 PhD Imperial College (Mathematics) large scale ocean circulation

1993 – 1996 MA Cambridge (Mathematics, 1st class)

1986 – 1993 4 A’s at A-levels, Mathsx2, Physics and Chemistry

10A’s at GCSE including Maths and English

Bristol Grammar School

**Employment Summary:**

**Morgan Stanley Institutional Securities Technology Jan 2000 – present**

**Global Head of Structured Rates Technology, London Jan 2012 – present**

**Managing Director**

* Responsible for IT strategy for trading desk, technical architecture, budget (~40million USD annually), business face off, internal and external audit and defining and prioritising the overall program of work in conjunction with the head of the business and COO, reporting to CIO of Europe.
* Significant projects include renovation of feeds to sub-ledger for settlement, confirmations and finance, renovation of risk and valuation models, introduction of tools to visualise total cost of ownership of technology, improvements to the efficiency of a compute grid of several thousand nodes.
* Leading a multi-year-year program to replace legacy front office trading systems, some of which are 17 years old and deeply integrated into several other firm-wide systems.
* Overseeing a 50% increase in headcount in global team (from 80 to 120), implementing resource location strategy and altering the balance of permanent employees and contractors.

**Global Head of Interest Rate (IR) Derivative Risk Technology, London Nov 2009 – Jan 2012**

**Executive Director**

* Led a team of 80 developers across 8 locations, including London, NY, Tokyo, HK, Shanghai.
* Responsible for IR derivatives intra-day and end-of day risk, trade and market data capture, profit and loss attribution, various feeds to middle and back-office, and firm-wide risk management systems.
* Acted as business analyst, project manager and team lead.
* Projects included collateral-based discounting, a flexible framework for FSA stress-tests, remodelling of structured notes to better capture credit risk, integration of a new yield curve calibration library, automated liquidity valuation adjustments, integration of an in-house electronic trading platform, automation and performance improvement of end-of-day processing reducing the time from four to two hours.
* Introduced vendor supplied grid distribution and caching technology and rationalised global footprint of hardware to reduce annual hardware costs by six million USD and increase capacity by 20%.
* Managed relationships with key stakeholders (e.g. interest rates global COO, global and regional heads of sales and trading, desk heads) globally.
* Set annual budgets and priorities.
* Business face-off for European interest rates.
* Met with internal and external auditors.
* Vendor management for two systems (distributed caching and accountancy system).
* Proposed architecture to use MS systems on-shore in China in conjunction with a 3rd party system.
* Introduced agile development practices to the global group.
* Introduced scala to the development environment.
* Co-ordinator for campus recruiting at Cambridge.

**Head of Asian Interest Rate Technology, Tokyo Sep 2006 – Nov 2009**

**Executive Director**

* Increased team size from 5 to 15, including setting up teams in Shanghai and Hong Kong.
* A key achievement was to bring significant development projects to Asia, which had previously been seen predominantly as a support centre for applications developed in Europe and America.
* Business analyst and lead architect and developer for various projects, including trade capture for of exotic derivatives, real-time import of FX trades, intra-day risk metrics.
* Part of negotiation team during merger with MUFG bank. Proposed and designed an architecture for merger of systems for interest rates and retail banking.

**Co-head of Exotic Interest Rate Options, London Dec 2003 – Sep 2006**

**Vice President**

Designed and built a system of cross-asset profit and loss estimation for traders and financial controllers

Led development on various other projects including enhancements for stochastic volatility, templatisation of Bermudan callable options

**Developer, Interest Rate Derivatives, London Jan 2000 – Dec 2003**

Designed and developed trading functionality for the interest rate options desk, inflation desk and the long-dated FX volatility desk including user interface, trade capture, new risk metrics, scenario analysis

Developed in C++, java, perl, A+ (in-house functional scripting language)

**Additional information:**

My most recent two roles at Morgan Stanley have been essentially the same, but due to organisational changes and promotion my official title has changed. My job is two-fold: to help the global interest rate derivative desk wherever I can and to further the strategic goals of the technology and data which are to create a more cost-effective and controlled technology platform. Currently, I share the global lead for interest rate derivatives with one colleague in London and I tend to focus on options and exotics and hybrids, and my colleague concentrates on flow products. However, we both have the freedom to overlap and interchange and this means that in reality I work on risk management issues for all derivatives. With a few exceptions we do not have well-defined functional roles such as project manager, business analyst, developer, so throughout my career I have taken on all those functions and I now manage my group in the same way encouraging team members to grow by providing a complete package to their respective user community. Despite leading a team of currently 120 developers, I try to code 10% of the time. I spend about one third of my time sitting on the trading desk next to the head of the options and the global COO of rates to get a better understanding of how the business works and how they may benefit from changes to the technology platform. The rest of the time I spend in planning meetings with my team or with managers across technology and data.

The main interest of the options desk is risk management. Therefore my main projects tend to be in this area. In 2010 and 2011 we completely overhauled the yield curve calibration across all the systems and built OIS discounting (CSA collateral based discounting) into the systems, fully integrated into all the trading tools and books and records systems for all interest rate products. In 2011 we started to overhaul the legacy trading system, STS which has been the main books and records system for interest rates for 15 years. At the same time, we started to work with the quants to add a variety of new models into the new systems. We have currently delivered the new models for the entire global vanilla option portfolio. The main challenge in this was maintaining at all times consistency between pricing tools, intra-day risk and books-and-records risk that we feed to market risk department. We have also recently overhauled the intra-day risk systems for both options and flow desks. For options desks we can now compute all the risks on demand for the entire portfolio, including all the exotics in around 30 minutes, compared to two hours in the past. We have built an entirely separate system for flow desks that provides near realtime risk and p&l. In recent years, we have also significantly improved our scenario and p&l explain infrastructure to better understand large shocks, non-linear terms and x-gamma via both greek-based and reval p&l. These systems are used by market risk and finance groups as well as trading desks. The design, implementation and deployment of all of this has clearly been a team effort involving tens of developers as well as quants and other areas of the bank, but in all of these projects I have been actively involved at each stage, as well as project initiation, keeping the projects within budget and delivered on time and reporting to senior management.