**ANURAG** **SRIVASTAVA**

+44(0) 7778198142 · [anuragr@gmail.com](http://cv)

**QUALIFICATIONS SUMMARY**

Quant analyst with strong experience in high-performance computing and research for financial companies. Insight into market data, e-trading, pricing and PNL analysis for a derivatives portfolio.

* Experience with fixed income pricing, derivatives hedging, passive investing and risk management
* Expertise in applications for time-series analyses and risk management
* Strong experience in development of data-driven and heavy-throughput software systems

**BUSINESS AREAS**

|  |  |
| --- | --- |
| Products | Equities, Fixed-Income and FX (high-frequency trading) |
| Functions | Pricing and Risk, PVBP and PNL analysis, Credit Valuation Adjustment. |

**TECHNICAL SKILLS**

|  |  |
| --- | --- |
| Languages | C-C++, python, Java,perl |
| Math Tools | R, Matlab |
| Libraries | *C++*: boost, XML(expat, xerces, pugiXML), lex+yacc, zeromq, *python*: nltk, pandas, numpy |
| Design | IBM Rational Suite, MagicDrawUML, Poseidon, ArgoUML |
| SCM Tools | ClearCase, SVN, CVS, git |

**PROFESSIONAL EXPERIENCE**

|  |  |
| --- | --- |
| **JPMorgan Chase** | **London, Feb 2016 - Present** |

**EMEA Equities Risk**

*Equity Risk Analyst*

Responsible for risk management and development of client driven and algorithmic strategies deployed on the firm’s flagship structured trading platform.

* Implemented investment strategies for professional clients and eligible counterparties - with strategy flavours including cross-asset momentum, yield-carry, rolling futures, collars and straddles (python)
* Supported and maintained tools for computation of greeks for all algorithmic trading strategies (C++)
* Maintained and enhanced risk management facilities for 100+ custom structured trades (baskets and derivatives) on equity and fixed-income indices (C++,python)
* Automated and centralised data-retrieval for algorithmic products involving multiple data sources to save on complexity and computation time (python)

**PROFESSIONAL EXPERIENCE**

|  |  |
| --- | --- |
| **Pilotware Ltd.** | **London, Aug 2014 - Oct 2015** |

**FX High Frequency Trading**

*Development Lead*

Managed a team at a small (now defunct) trading firm to develop a high frequency trading system for aggressive and passive automated execution of alpha-based FX trading strategies in the CME market.

* Integrated order-book and trade-book alphas (book imbalances and spreads) in a single low-latency framework for implementation of parameter estimation-based HF trading strategies (C++,python)
* Wrote the backend to track portfolio risk for brokers in a high-frequency trading environment (C++)
* Setup a tickerplant for continued alpha-research at the firm recording terabytes of microsecond granularity CME market data spanning over 60 days (python,C++)
* Wrote an exhaustive rules-based limits server for hard and soft position limits set by the brokers and traders in the automated trading environment (python,C++)
* Developed a high-performance armadillo/C++ library available over ctypes (python) for backtesting of parameter estimation-based trading strategies

|  |  |
| --- | --- |
| **Fintegral Consulting AG** | **London, May 2014- Jul 2014** |

**Risk Consulting**

*Summer Intern*

Worked as an intern in a small team of financial engineers (3) to implement and test methods focussing on minimization of PNL volatility rather than delta-hedging of a derivatives portfolio

* Estimated hedging costs in a model including transaction costs and liquidity measures and devised an algorithm to minimize volatility of the PNL in a derivatives portfolio over a given period (R,python)
* Extended the model for barrier options and devised controls based on sudden jumps in delta (R,python)
* Included jump-diffusion models and studied the effect of stochastic volatility on PNL variance (R,python)

|  |  |
| --- | --- |
| **BNP Paribas Inc.** | **New York, Jun 2010- London, Aug 2013** |

**FX High Frequency Trading**

*Assistant Vice President*

Worked in a team of ~20 quant/execution developers to build and maintain high-frequency software for high-frequency spot-trading of FX products (primarily G10 currencies); analysed order flow and exchange connectivity working side-by-side with traders to implement and evaluate HF strategies.

* Searched for opportunities in the FX spot market by analysing HF order flow – improved the daily P&L by up to 18% during high-volume market events such as the non-farm payroll release (R,python)
* Reduced transaction and slippage costs with automated hedging (C++)
* Analysed latency bottlenecks in detail and developed a language specification and a suite of tools (lex/yacc,python) to detect and report bottlenecks in the delivery of market-data
* Developed desk’s high-frequency order management server handling FIX/XML messages over an infiniband network to trade G10 currencies on markets such as EBS, Hotspot, Currenex, CME (C++)
* Actively monitored positions of global and regional trading accounts and set up intra-day risk limits for the automated trading applications to safeguard bank against excessive trade losses (python)

**PROFESSIONAL EXPERIENCE**

|  |  |
| --- | --- |
| **Nomura Securities International** | **New York, Dec 2009- Jun 2010** |

***Fixed Income Trading***

*Quant Developer*

Built the order management system and pricing engine in a team of 6 developers for firm’s Fixed-Income trading desk. Worked closely with trader(s) to enable automatic quoting of prices to Bloomberg requests in a high-bandwidth, low-latency environment.

* Developed pricers for treasuries, notes and T-bills as an SOA application providing real-time prices to different applications on various platforms within the bank (Java,python,C++)
* Calibrated interest-rate models for treasuries-related products for the sales desk (Matlab, C++)
* Maintained a uniform depth of order and trade books – unifying price-feeds from several market-data vendors such as Bloomberg, Tradeweb, Reuters
* Developed high-performance and scalable multithreaded publisher-subscriber processes for ingest and publishing of market data from the different vendors (Java)
* Built multithreaded low-latency asynchronous server to automate trading at Bloomberg and Tradeweb servers - reducing manual ticket-based trades by 50% at the start of the project
* Developed a TIBCO-EMS based position management system for the desk; wrote parts of the application for communication between proprietary e-trading/post-trading tools and Bloomberg/Tradeweb

|  |  |
| --- | --- |
| **JP Morgan Chase NA** | **New York, Jan 2007- Jul 2009** |

**Portfolio Analysis**

*Quant Developer*

Worked on a suite of applications with a mid-size development team (20) as a software developer for the firm’s credit risk management application to monitor counterparty exposure and credit risk associated with all the OTC derivatives trades at the bank (in context of collateral and netting agreements). Responsible for development of perl and C++ backend for evaluating credit valuation adjustment (CVA) and reporting PNL, Billing results as well as the counterparty exposure across all OTC trades in the bank.

* Developed and scenario-tested pricers for power and base-metal products - working with resident commodities experts to improve credit risk evaluation of respective trading counterparties (C++)
* Designed XML based database (Sybase) interfaces for ingestion of commodities-trade data and market-data from different vendor sources into the parallel Linux application (~200 nodes)
* Simulated market-tweak scenarios for legal entities (counterparties) - minimizing P&L volatility of the bank reserve capital within Basel II requirements (perl)
* Handled ad-hoc PNL-explain queries to identify parameters affecting daily CVA change
* Developed a caching mechanism of stored proc outputs into a fast NAS NetApp filer to provide high bandwidth market-data access to Beowulf cluster compute nodes (perl,C++)
* Developed a Visual C++ GUI of a tool for risk metrics and market sensitivities for OTC trades (using the stored results of the Monte Carlo simulations)
* Wrote perl scripts for automated generation of PNL and Billing reports

**EDUCATION**

* M.Sc., Finance, *London Business School*, UK 2014
* M.Sc., Computer Science, *Virginia Polytechnic Institute and State University*, VA 2006
* B.Tech., Information Technology, *Indian Institute of Information Technology*, India 2003

**PERSONAL DATA**

|  |  |
| --- | --- |
| Nationality | Indian |
| Current Visa Status | UK Resident (EEA2 Family Permit) |