**[Vishnu Elamathi](mailto:vishnu.elamathi@nyu.edu)**

New York, NY

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**Qualifications Summary**

* 7 years of strong quantitative skills who is well-versed in handling large amounts of data using Python (2.7 & 3.x) and to analyze survey data, budget reports, cost, and pricing models
* 4 years of Big Data experience in major Hadoop distributions such as Cloudera, Hortonworks in Agile environment
* Experience in Cloud environment such as Amazon AWS/Google Cloud including AWS event/trigger functions
* Handled high volume structured/unstructured portfolio data using Hadoop (Python/Java), Pig, Spark (SQL Scala), Impala, Sqoop, Kafka, Hbase, Flume
* Worked on data ingestion framework and extensively used Pig/UDF/SparkSQL for ETL
* In-depth knowledge and experience with Data Warehousing ETL (Extraction/Transformation and Loading) using Datastage tools
* Extensive experience and knowledge with gathering requirements in SDLS and extending specification, design, coding, testing and implementation to documentation and project representation during SCRUM calls
* Excellent verbal and written communication skills combined interpersonal and conflict resolution skills
* Have proficiency in Python visualization libraries(**Seaborn, Bokeh, bqplot, plotly**) for analytical dashboards.
* Worked in FCA, London (Financial Conduct Authority) for 3 years and have exposure to European regulatory environment
* Excellent Database (Oracle SQL) skills with python proficiency. Well versed in PL/SQL programming and also Oracle Certified.
* Specializing in financial product analysis, risk analysis, financial forecasting, reporting and capital stress testing
* Confident conducting regression modeling with proficiency in building time series, linear regression, multivariable regression and logistic regression in Excel and R

# Analyzing financial statements, data mining and quantitative analysis

# Experience in Machine Learning and Deep Learning (Kaggle competetions) using keras (TensorFlow backend) and Pytorch

# Education

Masters of Science, Financial Risk Engineering, New York University, NYC, December 2015, 3.70/4.0

Bachelor of Engineering – Electrical and Electronics Engineering, Anna University, India, April 2008, 3.72/4.0

**Skills:**

**Platform:** Linux/Unix

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| --- | --- | --- | --- |
| **Technologies** | **Libraries** | **Tools** | **Methods** |
| Python, PL/SQL, Shell Scripting, R, MATLAB, XML/JSON, VBA, MS Access, Perl, MySQL, SQL Server, NoSQL, MATLAB, Mathematica, Java | Numpy, Scipy, Pandas, NLTK, Scikit-Learn, QzTable(Quartz)  Keras (Tensorflow)  Pytorch, bokeh, bqlot, plotly | Git, Eclipse, Pycharm, Vi, Emacs, JIRA, Toad, Excel, Bloomberg | Agile Methodologies- Scrum, Object Oriented Programming. |
| **Big Data** | **Cloud** | **Hadoop Distribution** |  |
| Hadoop, Spark, Hive, Impala, Pig, Sqoop, Oozie, Kafka, NIFI | Amazon AWS  Google Cloud | Cloudera, Hortonworks, MAPR |  |

# Professional Experience

**Bank of America Merrill Lynch, Jersey City, NJ June 2016 –Present**

**Quantitative Developer/Big Data Architect**:

**Technologies:** Python,Oracle, SQL Server, Sandra (Graph based database)

**Horus Integration Project:**

* Designed Sqoop Data ingestion framework in Spark/Scala to migrate History data from Oracle Database(300+ tables) and Cache Database(150+ tables) with minimum effort
* Designed the big data lake solution which involves Ingestion, Refinement and publish zones
* Designed the Data ingestion using Code generator to ingest 150+ tables from Oracle and SQL Server database
* Designed Sqoop Data ingestion framework in Spark/Scala to migrate History data from Oracle Database(300+ tables) and Cache Database(150+ tables) with minimum effort
* Programmed in **Scipy/Numpy/Pandas/Quartz** (custom package) stack to build custom data pipeline for calculation engine.
* Programmed Job dependency in python and scheduling to effectively process data based on their availability from different sources.
* Collaborated with Business in building analytics and visualization (**Seaborn /Grafana**) tools to effectively monitor data.
* Collaborated and programmed a custom data pipeline for the Greeks calculation engine.
* Customized Data extraction and wrangling process for python APIs for calculating Market Sensitivities.
* Developed key data quality testing strategies and Logging process to effectively monitor data quality for the Market Sensitives.
* Modified legacy SQL stored procedures to facilitate data loading for the new calculation engine developed in python.
* Took ownership in integrating one of the systems to the newly created calculation engine.
* Participated in daily scrum calls with business stakeholders to prioritize work as well and track progress.
* Coded around unit test cases to comply with Test Driven Development while maintaining test coverage.

**Single Name CDS Margining System:**

* Developed a Proof of Concept involving a Data Library, DataPump Portal and Project R in a Hadoop environment.
* Retrieved HDFS data using Hive, Pig and MapReduce – Java/Python
* Performed an end to end analysis of the current environment and designed a Big Data Proof of Concept.
* Ingested data into HDFS from different data sources using Sqoop and an in-house utility.
* Retrieved HDFS data using Hive, Pig and MapReduce – Java/Python.
* Developed a comparison study between Hive and DB2 functions and a plan to close the gap using UDFs/UDAFs.
* Programmed in **Scipy/Numpy/Pandas/Quartz** stack in building custom calculation engines for margining process.
* Coordinated with Risk Officers and Business Owners on effectively transitioning from ICE margining to Internal Margining System.
* Programmed and modified **RESTful** APIs to facilitate data sharing between legacy (JAVA)/python/Excel calculation engine.
* Coded **RESTful** APIs to effectively track and log different calculation engine and store data in Sandra (NoSQL) database.
* Programmed Customized Time series for every CDS/CDX product from Markit feed for four years timeline.
* Coded Calibration APIs in Scipy/Numpy/Pandas/Quartz stack to calculate market sensitivities for Credit Products.
* Coordinated with Quants/Risk Managers to build calibration engine for sensitivities of Credit Products using Markit Spread Curves.
* Coded around unit test cases to comply with Test Driven Development while maintaining test coverage.

**Openlink Financial, New York, NY September 2015 – December 2015**

**Intern, Risk and Quantitative Service**

**Technologies:** Python, SQL, Java, UNIX, Shell scripting

* Coded Python APIs to build customized XML from feed files/CSV to automate their data loading process in creating a time series to build Volatility Surface.
* Designed a customized data pipeline to facilitate their dynamic reporting process which was manually done.
* Programmed APIs in Numpy/Pandas/Scipy stack to build Time Series of FX/Commodities from third party vendors (SuperD, Bloomberg, Reuters)
* Evaluated markets returns time series data of various FOREX markets for evaluating the Profit and Loss (P&L) of various client portfolios and estimate the expected P&L.
* Modified Value at Risk (VaR), Mark-to-Market (MTM) and Potential Future Exposure (PFE) reports by constructing Monte Carlo Simulations for forward rates using LIBOR market model and using them to evaluate XVA price for the instruments in various instruments in different portfolios in python.

**Financial Conduct Authority (FCA), London, UK November 2010 – November 2013**

**Senior Analyst/Consultant**

**Technologies Used:** Python, SQL, PL/SQL, Shell scripting, Oracle

* Programmed a customized bot to track sentiment analysis on select list of web portals for their impact on Traded Equity.
* Built Primitive models for three Volker's metrics Customer Facing Trading Ratio (CFTR), Pay-off-To-Spread Ratio and Inventory Ageing in Python and helped in evaluating the efficacy of the model used.
* Built Customized PL/SQL packages to improve performance of “Banking Supervision Database” for evaluating Capital requirement for Capital Requirement Directive (CRD III) project for financial organizations under FCA’s regulatory
  + - Designed the Data ingestion using Code generator to ingest 150+ tables from Oracle and SQL Server database
    - Designed the Change Data Capture for Large dataset in Big data platform
    - Designed the Automated testing strategy to perform Metadata and Data comparison between Source and Data lake tables
    - Designed the big data lake solution which involves Ingestion, Refinement and publish zones
    - supervision, and helped in migration of the system from FCA to Prudential Regulatory Authority (PRA) which is operating under Bank of England’s (BoE) supervision.

**Hartford Life Insurance, Chennai, India July 2008 – November 2010**

**Programmer Analyst/Consultant**

**Technologies Used:** PL/SQL, SQL, Perl scripting, Oracle9i, 10g, Oracle Forms 6i

* Built custom modules in Perl, C++ and PL/SQL to implement various Actuarial models for pricing and evaluating risk for various scenarios applicable for Hartford Life insurance.

**Academic Projects**

* Comparative Analysis of Pricing Exotic Options using Monte Carlo and Finite Difference (FDM) Methods in Python
* Computing Survival Probability and Default Probability from Credit Default Swap (CDS) Curves with Python modules
* Dynamic Modeling and Pricing Pass through Mortgage Backed Securities (MBS) using Python
* Modeling Counterparty Credit Risk and Computing XVA (CVA, DVA, FVA, MVA, KVA) using Monte Carlo Simulations

**CERTIFICATION**

Oracle Certified Professional (PL/SQL) 10g

**TRAINING**

**Certificate of Quantitative Finance**, Fitch Learning, New York, NY, July 2015;

Advanced Volatility Modeling – Stochastic and Jump Diffusion Modeling; Advanced Portfolio Management – Dynamic Portfolio Optimization using Stochastic Control & Fractional Kelly Strategies

**Advanced Risk and Portfolio Management Boot Camp**,

Professor Attilio Meucci, SYMMYS, New York, NY, July 2015;

Black-Letterman Portfolio Construction; Copula Option Pooling Approach to Portfolio Construction