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Summary

- Experienced Software Developer/Architect with over twenty years of strong expertise in architecture, design, and development of complex, distributed, scalable enterprise applications using Python, Java, C++, C#, and related technologies
- Business areas: credit risk, foreign exchange, fixed income, derivatives, risk management, automatic speech recognition, machine learning, deep learning, big data
- Advanced training in Theoretical and Applied Mathematics

- **Software Technologies:** Python, Java, C/C++, Quartz, Python extensions for scientific computing, Django, Javascript/Javascript Frameworks, distributed computing (Condor,) Torch7/Lua (Deep Learning framework,) Jenkins for continuous integration, Zookeeper, Enterprise Service Bus(ESB,) multithreading, lightweight application frameworks (Spring, Struts,) JUnit, J2EE (EJB, JSP/Servlets, Tomcat, WebLogic, JBoss, JRun, JMS, JDBC), C#, .Net, Apache AMQ, JSON
- **Software Methodologies and Architectures:** Object Oriented Analysis and Design, Service Oriented Architecture, Grid Computing, Design Patterns (GoF, Spring IoC, Enterprise Application Architecture patterns) Enterprise Service Bus(ESB) RESTful Web Services, Streams, Microservices, Test Driven Development (TDD,) Agile Software Development.
- **RDBMS:** Postgres, Microsoft SQL Server, Sybase, Oracle, DB2, MySQL
- **NoSQL:** Sorl as NoSQL DB

Experience:

August 2014 – Present
Bank Of America, NY, NY
Consultant for Credit Risk department.

Worked on development of new Quartz-based software Credit Risk Management system.
Utilized Python Quartz technologies for both back-end and front-end projects (NOSQL DB, Messaging, Grid computing, special Python packages, proprietary GUI technology, etc.)

August 2010 - July 2014
Shannon Lab, Florham Park NJ,
Consultant for Automatic Speech Recognition (ASR) Modeling Group of Shannon Lab

Designed and developed a framework for automation of learning Automatic Speech Recognition (ASR) models
Utilized Python with Python extensions for Scientific Computing, Solr, Jenkins, Condor/Dagman, Django/Postgres, along with tools built on the top of Watson (C++) to implement a framework for automatic learning and testing ASR models. Initiated use of Solr (Java, Python) as NoSQL DB to address the challenge of effectively organizing the data sets on the scale of hundreds of Terabytes. The system utilized a cloud containing clusters of multicore servers with GPUs for training NN models. Optimized Deep Learning (Neural Network) training scripts to solve the problem of Network bottleneck (Torch7/Lua)

October 2007 – August 2010
FDS, NY, NY
Consultant

Designed and developed administration software for hedge funds

Among major projects:

Generic Messaging Service
Designed and implemented a generic framework of messaging service classes based on Apache ActiveMQ. The framework was configurable onto a particular service by specifying a dictionary mapping the service end points into the handlers Python, AMQ. The framework played a role of Enterprise Service Bus(ESB) for company-wide SOA initiative rollout.

GL Services for Hedge Funds
Developed and implemented into production General Leger Services oriented on Hedge Funds utilizing Python/PyDev/PyUnit

Domain Mapping of Financial Products
Mapped financial products Equity and Interest Rate Swaps, Total Return Swaps, Convertible Bonds, options into company-specific domain model objects Python, C++, Java, SQL

Cross Applications Configuration Subsystem
Designed and implemented a url-based Configuration subsystem to allow external clients to be configured from a web site. Utilized Python, C#, XML, SQL Server.

Trade Conversion Application
Created an application for converting trades imported from external GUI trade applications into the company-specific internal presentation. Utilized Python, C#, DevExpress, SQL Server.

Amendments to proprietary Fitnesse like tool
Modified and amended proprietary Fitnesse like tool which was instrumental for Acceptance Testing and QA. Utilized Python, Nose

Build/Release Process
Setup the daily Build/Release Process for the company main application. Utilized Ant, Subversion, Python.

May 2005 – October 2007
Citigroup (Citi), NY, NY
Consultant

Designed and developed software systems for Citigroup's Interest Rate Derivatives Department
Among major projects:

Citi extensions to Murex
Designed and implemented an XML/XSLT C++ framework to mitigate the need to use of Murex C-interface generation. Utilized the framework for a pilot project for moving APAC (Asian Pacific) analytical libraries for IR exotics from VBA into C++ and integrating it into Murex. Utilized C++, Murex Linux-based Grid.

Extending Risk Calculation Application
Enhanced capabilities of a legacy application used as a Risk Calculator for Fixed Income Products (bond, interest swaps and swaptions) with trade processing functionality. The application had Motif-based GUI with CORBA based back-end interfacing Sybase. Added various data adaptors for additional data feeds (C++, Sybase, Java)

Sales Application Top Client Score Sheet
Designed, developed and implemented into production an application "Top Client Score Sheet" for Citi sales and trader groups. It was a desktop application with peer-to-peer communication enabled, developed in C#/.Net with Sybase used as DBMS. Inquiries by major clients and trades are entered by salespeople and immediately updated on the peer screens. Real-time statistics of successful trades versus inquiries allowed traders and salespeople to set the desired prices either to maximize profit or to increase the market share.

April 2003 – May 2005

Automated Data Processing, Inc. (ADP), Parsippany, NJ
Consultant

Among the projects:

Order Processing and Commission System (OPCS)
Led enhancements and redesign of order processing and commission system. OPCS enabled ADP's sale force of the Small Business Services division to process transactions for over 300,000 clients.

Variable Roll Call (VRC) project
Designed and developed VRC amendment to the OPCS. The project required significant cross cutting redesign of its legacy infrastructure code. The legacy C code of the system core was redesigned and migrated to object oriented C++ implementation C/C++, Java

August 1998 – March 2003
Citibank (Citigroup), New York, NY
Consultant

Designed and developed software systems for Citigroup's Foreign Exchange (FX) Trading business

Among major projects:

A web-based, real time risk-management application Gizmo
The system has been used by FX traders in the US, Europe, Japan and Latin America as the main risk management tool in their day to day activities. It was developed in close communication with the traders on the trading floor, using the Agile Development methodology. Several versions of Gizmo were developed and deployed into production. Each following version delivered richer functionality, better scalability, performance, extensibility and low maintenance requirements. All the upgrades were transparent for the users. The versions migrated from Software technology based on C++ CORBA back-end and Python/Apache CGI front-end to Java J2EE EJB under Weblogic back-end and Servlet/JSP/Struts front-end. Data was stored in Sybase and in Oracle databases.

Reviewed the architecture and participated in the design of the real-time trading system OpenFX
Worked closely with the London based architecture team. Designed patterns and interfaces for the services dealing with processing of the contracts, cash flow maintenance, managing different types of real-time and sanitized rates, real-time calculations, handling the communication of the real-time updates by the back-end to the GUI, etc.

October 1997 – August 1998
Merrill Lynch, Somerset, NJ
Consultant

Financial Planning System (FPS)

Designed and developed FPS products.

Among major projects:

- Designed and developed a C++ template framework, which allows for high-performance resource-efficient funneling of incoming Client requests to a pool of server processes. The servers played the role of container that transparently wrapped a network-unaware application.
- Developed a Java-based GUI Client used as a front-end for the framework developed for FPS products. The Client communicated with a Unix-based Server through TCP/IP.
- Designed and developed a CGI-based Thin Client as a platform-independent GUI for the existing UNIX-based FPS products. The Browser-based GUI communicated with the Unix-based HTTP Server.
- Used the Framework to develop a CNA server (a financial product) and a CGI-based thin client as a front end for the application.
- Developed a version of a FPS product (Education Planner) for Windows NT with ActiveX-based Back End and ActiveX/Java Script HTML-based GUI. It was used as a working prototype for similar products.
- Designed and developed a Regression Test system for FPS products.
- Ported several FPS products, developed on UNIX, to Windows NT using Visual C++.

September 1995 – October 1997
QEI Inc., Springfield, NJ
Software Project Leader, Architect

Supervisory Control and Data Acquisition Systems (SCADA)
Designed and developed SCADA for Pipelines, Power distributing, and Railway companies.
Among major projects:
Designed and developed a fully redundant, distributed SCADA for a Major Client (AMTRAK). The System used Open VMS on the Server and the workstations. The DEC C++/C and X Window/Motif were used in the development.

November 1994 – September 1995
Sandvik Sorting System Inc., NJ
Consultant

Designed and developed an automated high-speed package sorting system for Federal Express at the Newark Airport using C++ on UNIX System V with real-time extensions from VenturCom, and Motif-based GUI.

- As part of the overall system's redundancy, designed and developed the subsystem responsible for synchronizing database transactions and data replication between hosts, using UNIX TLI and IPC-based messaging facilities.
- Designed and developed a hierarchy of C++ classes used in GUI processes for data access in a uniform way, such that data structures were transparent to the GUI processes.
- Contributed to the design of an Object Oriented wrapper for a Relational Database.
- Designed and developed a UNIX (TCP/IP) and IPC-based Messaging Subsystem.
- Designed and developed a multi-platform communication subsystem between UNIX and PC.

1993 – 1994
The University of Melbourne
School of Mathematics, Statistics and Computer Science
Academic Associate

Developed mathematical models for financial applications. Taught university undergraduate courses.

Education:

Ph.D. in Mathematics, 1989
MS in Applied Mathematics
Publications: Published more than 15 articles in mathematical journals.