
PROFILE

Expert C++ software architect and developer with over twenty years of experience in various roles. Four years in investment banking, quant research.

- Object Oriented design and development in C++, on Windows and UNIX
- Expert STL developer
- Development of efficient algorithms.
- Scientific computing
- High performance multithreaded or multiprocessing applications
- Refactoring of large software products to improve performance and robustness
- Low-level optimization in Assembler, programming at the hardware-register level
- Experienced with: C++, STL, C++ templates, Windows and POSIX threads, intra- and inter-process messaging and synchronisation on Windows and Linux/UNIX, TCP/IP, MFC, COM, DCOM, UML, Design Patterns, x86 Assembler, and many communications protocols.

EDUCATION

1991 – MSc Computer Science

Concordia University, Montreal, Canada

1988 - Bachelor of Science, Physics, Honours Degree with Distinction

Concordia University, Montreal, Canada

Awarded the *Walter Raudorf Medal for Physics*

NATURAL LANGUAGES

Fluent in English, French, and Spanish. Functional in Italian.

EMPLOYMENT HISTORY

Quantitative Derivatives Analytics Library Architect

Royal Bank of Scotland – November 2009 to present - London, United Kingdom

ABN-AMRO Group - February 2007 to November 2009

This position started at ABN-AMRO and transferred to RBS after it acquired ABN.

At ABN I reported directly to the *Head of Credit, Hybrid, Inflation and Commodity Derivative Analytics*.

- I was responsible for maintaining the architectural integrity of the library as it evolved, to provide technical support and guidance to the quantitative team and to the Head and to verify new code for conformance to standards and sound practices.
- Designed a programming language tailored to the needs of the Common Analytics Library (CAL) users to optimize computations on the DataSynapse grid. Implemented an interpreter for the language.
- Improved the distributed computing code to increase the concurrency of the calculations or to implement the ability to cache constant objects on the grid to be reutilized by future computations.
- While at RBS, maintenance and enhancement of the quantitative analytics library.

Software Developer (consultant) - Barclays Capital –

Fixed Income Risk and Pricing - London, United Kingdom - October 2006 to February 2007

- I took responsibility for maintaining code and implementing new curves related to inflation-linked instruments. Skills: C++, SQL, and some Excel/VBA development, plus proprietary tools.

Senior Software Developer - Macrovision Corporation (Rovi Corporation) –

Berkshire, United Kingdom - 2003 to 2006

- I was responsible for the core engine of a product for copy protecting CD contents which had already been released in over 300 million CD's around the world. Notably in this role:
 - redesigned the engine to be multithreaded and to make it more robust
 - developed a new algorithm for multichannel decryption, and
 - greatly increased the number of supported devices

- Designed the infrastructure for a product for large scale, secure distribution of TV programmes on the Internet.

Independent Consultant - Several consulting jobs in the US and Canada - 2001 to 2003

- InterTrade Systems Corporation: Worked on existing Enterprise JavaBeans, JSP and servlet modules of a large Electronic Data Interchange (EDI) J2EE application.
- Fujitsu Softek: Worked on various parts of the Transparent Data Mirroring Facility (TDMF) product. Developed all of the MFC based GUI, and contributed to the database (MSDE SQL) and networking modules.
- Greenleaf Medical Systems: Rewrote the COM / DCOM portions of several modules for robustness and increased performance. Also some Windows CE development (targeting the H/PC Pro) to generate and print formatted medical reports.
- DeltaClick.com: TCP/IP development with IPWorks, WinSocks, Visual C++, and MFC.

Software Architect / Team Lead - Internet Gig.com - San Francisco, California, USA - 04/2000 to 05/2001

I designed the global architecture of a product for high volume multimedia storage and distribution on the Internet. I supervised a team of four developers and two QA specialists. Main personal contributions:

- Server development: designed and implemented in C++ a TCP/IP - HTTP multithreaded server which was clocked at substantially higher speeds than Apache Server.
- Script interpreter: designed a script language used by the QA team for automatic, high volume, stress testing of the server which allowed them to simulate a large number of simultaneous XML sessions between the test clients and the HTTP server. Using this tool two QA technicians were able to conduct both functional and stress tests on the Server, achieving rates of over three million test messages per hour, thus performing the equivalent work of a substantially larger QA team.

Software Architect and Developer - Nippon Telegraph & Telephone, Multimedia Communications Laboratories - San Francisco, California, USA - 04/1999 to 03/2000

I provided the analysis, architectural design, implementation, testing, and documentation of all the following:

- Videoconferencing library: designed and developed a general purpose library for real-time audio and video communications implementing ITU-T Recommendation H.323 and others (H.225.0, H.245, Q.931, etc.).
- Server development: used the above to design and implement *ArcSight*, an application for multimedia streaming that could simultaneously hook into any number of on-going H.323 intranet videoconference sessions to make them visible to any number of non-H.323-aware clients either in real time or off-line. After localization to Japanese, *ArcSight* became a commercial product in Japan, and has been used as a model for another product for distance learning.
- Server development: implemented a RealServer (RealNetworks) COM/DCOM encoder for live Internet broadcasting of video/audio data obtained from *ArcSight*.

Sr. Software Engineer - Eclipsys Corporation (formerly HealthVISION) - Santa Rosa, California - 1997 to 1999

I worked in various parts of a large MFC product for electronic medical records management in a distributed SQL data base environment.

- Server development: designed and developed the *Alarm Notification System*, an enterprise-wide messaging centre for dispatching e-mail and alphanumeric page notifications using MAPI, TAPI, and the Telocator Alphanumeric Protocol. The Alarm Notification System is a multithreaded, highly scalable, fault tolerant DCOM server running as an NT service, and it is currently deployed in various hospitals in the US and Canada.

Team Lead and Project Manager - Hamilton Software - Santa Rosa, California - 1996

I managed a project for CellNet Data Systems (now Landis+Gyr) in Redwood City, California. Led a team of three and interfaced with the client. This was a transitional job I took to move to California.

- Server development: designed a software gateway (router) between CellNet's wireless network and its Commercial Data Service clients. Besides such usual gateway tasks as validating, reordering, reassembling and redirecting incoming network packages, the software was responsible for keeping traffic statistics for the purpose of billing and documenting the quality of service. Implemented the gateway to execute either on a Windows NT or a UNIX SunOS environment.

Previous positions omitted