

# HUGO M.H. LYPPENS

*Computer Scientist • Object-Oriented Designer • Quantitative Risk Analyst*

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## EDUCATION

*EINDHOVEN UNIVERSITY OF TECHNOLOGY, THE NETHERLANDS*

M.S. in Computer Science, Cum Laude, April 1995.

Thesis: "From  $\Sigma$ -Algebras to Template Classes: A Structure Editor with Multiple Views". Using Borland C++ and the ObjectWindows Library application framework, I designed a C++ model for  $\Sigma$ -algebras and implemented a structure editor with multiple views for MS-Windows.

GRE scores: Quantitative 800 • Analytical 790 • Verbal 620

Fluent in Dutch, English and German

## PROGRAMMING LANGUAGES AND COMPUTER ARCHITECTURES

C (11 years) and C++ (5 years), Java, HTML, SQL, Perl, UNIX shell script, PASCAL, 68k and 80x86 assembly language, PostScript. OMT (Object Modeling Technique) methodology.

## SYSTEMS/OPERATING ENVIRONMENTS

UNIX workstations (Solaris, SunOS), X-Windows, IBM-compatible PCs (Windows NT/Visual C++), Commodore Amiga, CORBA (Orbix and OrbixWeb), UNIX socket programming (TCP/IP networking), Voice response systems.

## WORK EXPERIENCE

*GOLDMAN, SACHS & Co., NEW YORK, NY, USA*

7/95-PRESENT

*FIRMWIDE RISK, QUANTITATIVE ANALYST*

10/97-PRESENT

The Firmwide Risk department is responsible for calculating and monitoring risks taken by all divisions of the firm. My responsibility is to design and implement Value at Risk (VaR) models for various financial instruments. I have introduced a component to the system which computes Credit VaR for corporate bond portfolios, which is an estimate of the potential loss due to credit events affecting issuers. In addition, I developed a C++ Multifactor Monte-Carlo simulation tool for the Derivative Price Verification Group, which enables them to calculate the price of complex derivatives deals.

*CREDIT TECHNOLOGY, SR. PROGRAMMER/ANALYST*

11/96-9/97

I became Technical Architect of the Divisional Credit Processor (DCP) team, which is responsible for delivering credit exposure and limit utilization functionality to sales and trading applications in each division of the Firm. I contributed significantly to the design of the software Monte-Carlo simulation framework of the DCP. I personally designed the analytical part of the system which is responsible for calculating credit risk measures such as Current Exposure and Potential Exposure. In addition I was the main resource in solving the problems we encountered in adopting state-of-the-art technologies such as Orbix, OrbixWeb and Java.

*CREDIT TECHNOLOGY, PROGRAMMER/ANALYST*

7/95 - 11/96

Computer scientist in the Credit department where I contributed key components to a central system that monitors Goldman's credit exposure to the counterparties we do business with, across all business areas. My first major project was the design of the Utilization Architecture, which defines how the department sets credit limits and how limit utilization is calculated. I developed customized exposure calculations for the Swaps and FX business areas. Another major project was the Foreign Exchange potential exposure system. I worked in close cooperation with quantitative strategists in the J. Aron division where I gained a detailed understanding of SecDb, Goldman's Currency and Commodities trading system. The FX PE system that I successfully developed in C++ efficiently simulates a large number of future scenarios of currency exchange rates, interest rates and implied volatilities to generate a portfolio-based measure of the Firm's potential credit exposure to FX counterparties.

SYMPRO B.V., EINDHOVEN, THE NETHERLANDS

2/94 - 9/94

Contracting job as a software consultant (full-time). Engaged in developing an information system based on SUN workstations to keep track of containers, cargo and Bills of Lading for a major client in the shipping industry.

In C/C++ I designed and implemented most of the system's X-Windows user interface (XView) and the code to interface to a Sybase data server. I also designed and coded the print module, which outputs PostScript code for Bills of Lading and other forms, giving the client the important advantage of sophisticated-looking forms.

GENERAL LOGISTICS INTERNATIONAL EUROPE B.V., EINDHOVEN, THE NETHERLANDS

8/89 - 12/93

Part-time work where I gained extensive experience with UNIX and C on UNIX workstations and PC's, designing user interfaces with X-Windows, a library for inter-process communication and a library for Interactive Voice Response applications.

GENERAL LOGISTICS INTERNATIONAL, INC., UNION, NEW JERSEY, USA

9/91 - 11/91

A 3-month assignment at GLI headquarters. I was temporarily transferred to America to develop a fax server, which enabled users of GLI's cargo information voice-response system to get an automatic update on the status of their shipments by fax.

MARKT & TECHNIK A.G., MÜNCHEN, GERMANY

1990

Software publisher Markt&Technik released "3D-RealTime" for the Amiga, a 3D animation package that I designed and implemented in C and Assembly. This product has an innovative 3D editor which lets the user design 3D shapes that can be manipulated in real-time to create complex animations.

LYPPENS SOFTWARE PRODUCTIONS

1993 - 1995

Founded this company to market the "Video Backup System" (VBS) for Amiga which I invented together with a partner who is an electrical engineer. This product lets users connect their VCR to the PC and Amiga by means of a small hardware interface so that the VCR can serve as a data backup device.

During the development stage, I was responsible for designing and implementing the software in assembly language and C. It encodes computer data in a video signal and it performs Reed-Solomon error correction on information read back from the VCR in order to compensate for potential drop-outs on the video tape.

To market the product, I personally developed contacts with Amiga distributors and magazine editors in the UK, France, Germany, USA and Canada and placed advertisements in Dutch magazines to sell the product to individual customers in the Netherlands and Belgium.

The product has sold quite well, and was discussed often on Internet newsgroups. Favorable reviews were published by magazines such *Amiga Magazine* (Dutch), *Amiga Format* (UK, 92% Gold!, Dec. 1994), *Amiga User International* (UK), *Amiga Shopper* (UK) and *Amiga Report* (US).

I have also programmed a 32 bit PC-version of the Video Backup System, which has been marketed as a special offer to readers of the British Practical PC magazine.

## PUBLICATIONS

*Dr. Dobb's Journal*, November 1997: "Convolutional Codes - An encoder and a Viterbi decoder in C++". This article explains convolutional error-correcting codes and presents encoding and decoding algorithms.

*Dr. Dobb's Journal*, January 1997: "Reed-Solomon Error Correction - A fast software implementation". This article explains the mathematical theory behind Reed-Solomon error-correcting codes and presents efficient implementations of the encoding and decoding algorithms.

## INTERESTS

General Aviation: Holder of private pilot certificate (airplane single engine land)

Traveling

US Permanent Resident

REFERENCES AVAILABLE UPON REQUEST