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Profile

I’ve been Software Architect and General Manager of Intuitive Sight España, since 2001.

I’m currently developing projects for Banks and Stock Exchanges, for customers like Comunytek Consultores, and now VASS. I have expertise in C# development, Java, Delphi, C++, SQL Server, and Oracle, and I have written several books on these topics. I’m also familiar with Financial Maths, Machine Learning and Quantum Computing (IQ: 145). Full stack programmer, using several technologies both for the back and the front end.

I endorse what I call Quality Coding: writing the best algorithm from the beginning. I like to pay attention to the implementation details after the main framework has been set.

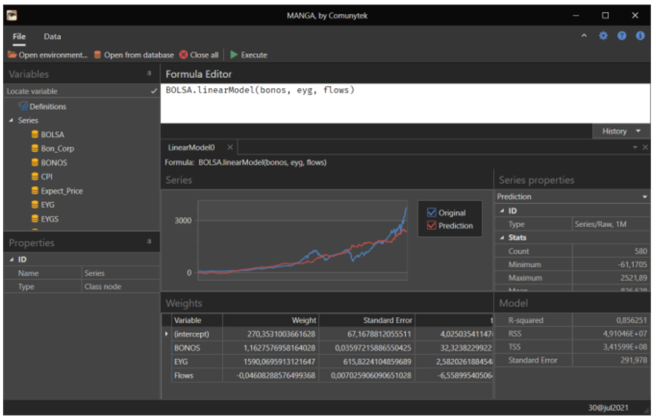
I’m passionate about my profession and all kind of intellectual challenges. If you’re ready to develop "*the next big thing*", I’m your guy, without hesitation.

Relevant experience

Since 2008 to present, I’m a regular collaborator of Comunytek Consultores, as a developer and software architect.

Reimplementation of MIG for Caixabank AM: a simple software for keeping account of funds and their managers. Back end in ASP.NET Core (updated to .NET 6) and front end in Angular.

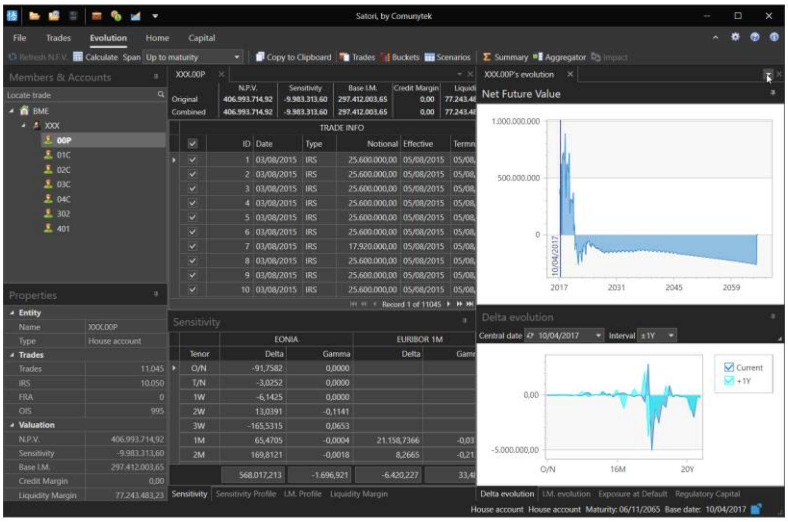
Design and development of MANGA: a high-performance library for handling financial time series and a corresponding language and terminals (both WPF and Blazor) for using the library (a one-man team project). It includes classical algorithms such as several flavours of GARCH, the usual ARIMA models, and a handful of matrix algebra and plots. Currently in use in Caixabank, España, for portfolio design and testing.



REC: ESG assessment tool developed for a first-tier bank in Spain. I remodelled all the server-side part, lowering importing and processing times from almost 24h down to just 30 seconds. The original database access was fully programmed with EF 5. The final implementation uses a mix of Transact SQL and carefully optimized queries also using EF Core 6.

A small algorithmic framework for classical Black-Litterman was implemented in C#, in 2020, for a first-tier bank in Spain. Results calibrated with NodeJS, using a second implementation of the algorithm for automated testing. Algorithm already included in MANGA, as a model feature.

Design and development of **Satori by Comunytek**, for Comunytek Consultores (C#, WPF). Fast valuation of IRD portfolios from Swapclear, CME, Eurex, and BME, IR curves loading and generation, and risk scenarios, Regulatory Capital calculations, scenario analysis and projections for NPV, CCR, and Initial Margin for future dates (XVA). I've devised a couple algorithms for optimizing Initial Margin and XVA, mostly based in garden varieties of gradient descent. Currently in use. The software won the 2019 award from TradingTech Insight as Best Trading and Risk Management System for Post Trade.



Design and Development of SwapCore (now Iridium): valuation engine for IRD portfolios, for Bolsas y Mercados Españoles (BME), now owned by SIX. Developed in Java, in three months, as a one-man project. Currently running. The engine is used both by the back and the front end of the IRS segment. The engine features analytic sensitivities for accelerated valuation (algorithmic differentiation). It also includes a vector-based calculator for further acceleration.

Excel plug-ins for Banco Santander, for contributing to Euribor/Eonia.

PriceManager: design and implementation of a high-performance price broadcaster for the Plug'n Trade suite from Comunytek (Java). Currently running. Supports up to 250K msgs/sec for each input channel.

SmartManager: design and implementation of an algorithmic trading component for the Plug'n Trade suite from Comunytek (Java). Supports iceberg orders, stop-loss, OSO, OCO, bracket, sliced, TWAP, spread, good-til-time, and deferred. Currently being used.

CkTS: high-performance trading terminal, for Comunytek. Windows Forms. Software in production. Supports up to 1M simultaneous assets in memory and handles up to 125K price broadcasting messages by second. Offers a natively compiled proprietary language for alerts and hedging. Can infer full implicit prices in real time. Includes a RTD Server for Excel.

Previous experience

I founded Intuitive Sight in 2000 as a development company, offering also training in programming languages and database systems.

I wrote a series of books, from 1997 to 2003, about Delphi, C++ and C# programming, and sold about 15.000 books in that period. I also developed several inline courses for database programming with Delphi, C++ and C#.

As a research task, I designed and implemented Freya/Lyra, an experimental OOP language for the .NET platform with an Object Pascal-like syntax.

1999-2000: Project Manager at TRC Informática (Madrid). Led a small team that designed and implemented Lynx, a multi-tiered software for managing loans and mortgages (Delphi/SQL Server). Currently still in use in Citibank and in Peppers Asset (renamed as Trovatore).

1996-1999: Danysoft International, S.L (Madrid). Corporative trainer in Delphi, C++, Oracle, SQL Server and Java.

1993-1996: Analyst Programmer at Geomap S.L (Madrid). Cartography, GIS, Microstation PC, C++, Computational Geometry.

1989-1993: Adjunct Professor, at the University of Havana. Taught Programming in Pascal and Formal Theory of Languages.

Education

University of Havana

1989 | Licenciatura en Ciencias de la Computación (Computer Sciences)

Skills

- Programming Languages: C (since 1984), C++ (1987), C# (2001), Java (1998), Delphi (1995), JavaScript, TypeScript, NodeJS, HTML.
- Libraries: VCL (Delphi), MAUI, WPF, Windows Forms (C#), both Framework and Core, ASP.NET MVC (C#). Blazor, Angular and Svelte for front-end programming. Some background in React.
- Deep knowledge of multithreading, both in .NET, .NET Core and JVM, including the Task Parallel Library, async extensions, Dataflow Parallel Library and so on.
- Good knowledge of AVX, AVX2, AVX512 and GPGPU programming. Extensively used in the MANGA Library, for matrix, series, and vector acceleration.
- Deep knowledge and experience with low-level sockets, both uni and multicast. Applied both to the client and the server side of CkTS, PriceManager and SmartManager.
- Web services, REST API, Windows Communications Framework, some gRPC.
- Relational Databases: Microsoft SQL Server, Oracle, InterBase. Expert level in Transact SQL and PL-SQL.
- Extensive experience with Entity Framework, and micro ORMs, such as Dapper and Norm. Can also write faster code at lower-level layers such as ADO.NET.
- Experience with valuation and risk control for Interest Rate Derivates and ETDs.
- FpML.
- I have a good knowledge of Financial Mathematics, Econometrics, Modelling, Machine Learning, and algorithmic trading.

- I’ve been part of projects exploring Quantum Computing for financial applications. Currently writing a book on Quantum Computer (some content can be previewed in Spanish at intsight.com).