PROFILE

Strong IT developer focused mainly on using the C++ toolchain within the Visual Studio 2019 build system, additional custom libraries used include VCPKG, Boost (with heavy statistics focus), STL, WinAPI, (or through the wxWidgets and/or MFC wrapper frameworks). Familiar with graphics/gaming libraries such as Simple DirectMediaLayer (SDL), SFML, OpenGL, GLFW, GLEW and other common header files such as GLM. Common C++ techniques used include developing template focused classes, developing custom libraries (static and shared), optimizing C++ code for efficient compilation and using C++ to interact with various custom library toolchains.

* Built complete trading systems from Interactive Broker API to backtesting, generate trading signals, trade entry and exit algorithms using C++/Boost/vcpkg.
* Worked with Cmake superbuilds pattern (ExternalProject) and powershell CMake scripting in VS Code.
* Strong knowledge using cross platform build system, CMake (VERSION 3.24): superbuilds pattern, FetchContents, debugging CMake scripts using message(), CACHE and variables.
* Built complete mutual fund reporting packages using C#, SQL Server, Entity Framework 6.0 and Office365 microservices/COM (Excel COM, PowerPoint COM, Outlook COM).
* Built complete Office365 automation apps using Access VBA, Excel VBA.
* Proven ability to design and implement systems which have ultimately reduced month end processing time by 80% or better.

PROFESSIONAL EXPERIENCE

TD Asset Management, C# developer (2-year contract) July 2021 – present

Sole application developer responsible for building custom software solutions for TD mutual funds processing and reporting automation. Relevant technology used in this role: C/C++, CMake build system tools, CMake superbuilds pattern, Visual Studio 2022 and Visual Studio code, powershell scripting, C# 8.0, Entity Framework 6.0, expression tree, delegate, Lambda, LINQ, XML, NuGet packages. Details below:

* Processes automation resulted in saving 40 manual hours per period in eight fund profiles, and 72 manual hours per period in six fund presentations.
* Responsible for all phases of solution delivery from architecture, laying out ideas and concepts in flowcharts, designing solution patterns, to code development, and solution delivery.
* Using technologies (C#, SQL Server) to collect large amount of data from various sources, cleaning data, deposit data in server databases, and develop reporting systems based on data in the server.
* Designed complicated mutual fund processing systems using Visual Studio C# 8.0 via Microsoft.Office.Interop COM components: Excel, Word, PowerPoint, and SQL Server using Entity Framework 6.0 (non-core), expression tree, delegate, Lambda.
* Implement C# generic classes that adapt to client calling code when executing different Office.Interop components. Relevant design patterns used: unit of work, repository, singleton, factory pattern.
* Working with C# app.config files to provide customization in various user defined implementations.
* Other C# NuGet packages used: Entity Framework 6.0 (non-core), Log4net, CsvHelper.
* C++, together with STL libraries were used in working with legacy COM interfaces, C++ COM headers were linked into C++ projects using CMake; C++ were also used in certain projects where database server is not required, hence, data were written directly to binary files using language built-in facilities.
* Designed CMake custom build systems that work in cross platform builds.
* VBA were used in some users required subsystems. VBA system and technique: designed complicated mutual fund processing systems with or without the use of a backend database system (depending on individual project requirement). When a backend database is not available, I implement virtual data classes using simulated C++ inheritance technique: I embed custom classes as data members within a parent class. Hence, I can simulate inheritance within VBA that are several levels deep or as deep as I need to define the software architecture, sometimes composition is chosen depending on situation. I also enforced polymorphism by making heavy uses of class interfaces, and then implement unique custom class definitions/types that address a particular business need without breaking interface definitions or custom APIs.
* Complete simulation of object-oriented coding methodologies within VBA using 4 pillars of object-oriented programming: abstraction, encapsulation, polymorphism and inheritance. Inheritance is natively not possible within VBA, however, it is possible to implement inheritance in VBA through simulation (i.e., composition). It is entirely \*possible\* to implement a true object-oriented model within VBA as the language natively supports 3 pillars of object-oriented architecture, the last one, inheritance can be simulated using composition.
* Utilized all MS Component Object Models: Excel, ActiveX data objects, Outlook library, PowerPoint Point objects (presentations, slides, shapes), and MS Word components.

Self Employed

C++ Trading Systems developer July 2019 – June 2021

A passionate C++ developer with a strong focus on using heavy statistics to make sense out of the financial/chaotic trading world.

* I build custom trading apps using C++ through calling functions within the Interactive Brokers API framework, from there, I extract intraday data through the API, I then build various data models and develop custom STL algorithm to process the data.
* I interact with various data input streams using the std::vector<> STL template as data sources coming across to my system do not require much modifications other than the occasional data clean up.
* I develop custom STL algorithm to process the data according to market conditions.
* I interface with various custom libraries as needed.
* GUI and charts developed using MFC, wxWidgets, SDL2 libraries.
* Data analysis using Python v.3.11.0 together with Pandas library, Numpy, SymPy, matplotlib, Jupyterlab and Jupyter Notebook.

TD Fraud Solutions, Enterprise Enabling Technology Solutions (EETS)

Sr. VBA/SQL Application Developer/Tester (contract) June 2019 – April 2020

TD Fraud operation acquired legacy software tools (Loss Control Solutions) around the year 2000, various power users and departments have been using these tools and built End User Applications (EUCs) around these tools (mostly in MS Access). TD would like to migrate all EUCs to a more current SQL Server, hence initiated the need for the project I was involved with. This conversion project required all connection strings within the EUCs to be redeveloped/remapped in order to work seamlessly with new backend Servers, many of these connection strings are deeply embedded in Access queries, in forms, and regular VBA modules as well as class modules, part of the solution required changing code throughout MS Access apps and redeveloped using TSQL, pass through queries, or initiate function calls to external ini files. One of the objectives was to allow users to change ini files and have the EUCs point to different Servers on the fly.

* End User Applications (EUCs) development, conversion, testing, and documentation.
* Data analysis using Python with Matplotlib and other python libraries.
* VBA, TSQL, stored procedures, documentation, MS Visio, MS Studio, MS Access (encryption/decryption, passwords, linked tables, pass through queries), Regex, PTC Integrity.
* Agile, Daily standup, Sprint; Confluence, Jira.
* C# - SQLBulkCopy, Lambda, Iterators, custom interfaces, data encryption/decryption. Data parsing, data dictionary mappings, loading custom config information into virtual datasets to be used by SQLBulkCopy, NuGet packages: log4net custom logs: error messages, warnings, information, CsvHelper, app.config, unit test.

FedEx Canada Corporation

Sr. VBA Developer/Application Programmer (contract) February 2019 – May 2019

* As a Sr. VBA Developer, I automated the FedEx 3278 model 2 BlueZone session and Ab Initio 3270 PR session using VBA scripts by calling methods in BzwhllLib 6.2 API. The VBA app emulates the exact mainframe keystrokes required to run these mainframe sessions via a click of a button in an Excel form.
* Developed a spell checker application within MS Access to handle misspelled names, misspelled postal codes and other misspelled key fields (where relevant). Once found, the application lists spelling suggestions and corrections (using update queries) to clean up input sources.
* Developed relational models to map data sources, output final results, and developed MS Access reports for various reporting requirements.
* Developed other one-off Excel macro automation tasks for marketing department.

MAXR Technologies

Sr. VBA Developer/Application Programmer (contract) January 2018 – December 2018

* As a Sr. VBA Developer, I architect, design, develop and support all phases of Excel custom automation applications while MAXR Technologies is in a transition mode from the current legacy system to Info LN.
* Developing applications using Excel involves the understanding and mastery of several unique and non-conventional data manipulation and specialization techniques that manage huge amount of data without the use of loops (which can and will slow you down considerably) but via the custom usage of data ranges (union, intersect, etc), and object oriented techniques in using classes and interfaces and implementation of interfaces via polymorphism, and an indepth understanding of working with coding the pivot table architecture and the usage of databases and aggregate worksheet functions/formulas that can deploy vast amount of data to various parts of the worksheet on the fly.
* Participated and documented the development of test strategy, test cases for system, performance, usability and acceptance testing of system solutions developed.
* Architected, designed and developed a fully blown Gross Margin reporting system from scratch utilizing backend SQL data. This Gross Margin reporting system pulled in backend SQL data and accomplished the following: reports on project costs and revenues using actual, forecast, and plan/budget data; supports custom sorting algorithms on multiple tabs in one loop; provides a very sophisticated error checking and exception handling algorithm; various custom views; and a complete object-oriented data and visual user interface. This complicated project took 12 weeks to complete and can process the entire reporting cycle in under 6 minutes.
* Provided Deployment and Post Deployment support.

Tools and Environment: SQL Server 2012, SQL Server 2014 and SQL Server 2016, MS Windows Server 2012, SSIS packages

Trading systems developer/Application Programmer January 2016 – December 2017

* Working as a professional trading systems developer. I developed statistical systems using C and C++ that scans for historical price data for behaviors that are tradable; the code searches for concentrated momentum and volume characteristics that are incipient as well as climactic conditions.
* Based on the evaluation of the market conditions in this module, I interface a separately coded trade entry and trade exit module that identify trade entry or trade exit triggers.
* Developed trade management module where the code examines the conditions of the price bars and price waves in relation to a chosen trading timeframe and detect momentum changes either in the form of shortening of the price spreads but with increased volume characteristics, which suggests the presence of supply in the market; or the waning of momentum thrusts in the price bars but without the accompanying of volume, which indicates the waning of demand; the code then alert other parts of the trade management module to initiate protective stops or profit target exits for the live trades that are active.
* All the modules are coded in an object-oriented design methodology where each module can be freely plugged into other modules as required. The technical system itself has proven to have favorable results.

TD Insurance

Sr. Financial Analyst / Software Developer January 2014 – December 2015

* Architected and developed TD Insurance’s Project Tracking Tool (PTT) and other reporting models for use by project managers and finance users.
* Developed 2 major financial tracking tools for TD Insurance which helped shorten month end reporting time from a 5-day reporting process cycle down to a 45 minutes reporting cycle.  The new tools developed contain custom written components (code based) and interfaces (forms, buttons, selection boxes) plus exception handling algorithms which helped standardize reporting requirements. These tools helped to reduce efforts, manual user interventions and increase efficiencies for all finance teams and project managers throughout TD Insurance.  I was also responsible for on-the-fly software development requests.
* Worked as a main developer and wrote all software code for all IT projects in the finance team (MS Access, Excel, SQL, custom classes, custom interfaces).
* Knowledge of all phases of the Systems Development Life Cycle including research, analysis and documentation of business and technical requirements, Development Support and Testing Support for new systems or enhancements
* Worked as a lead developer in the architectural of version 3 Project Tracking template.
* Designed and wrote all SQL data extraction code which interfaced with SharePoint server for Carpe and SORT data extraction.   In addition, as a CPA, I also worked on various finance projects and performed month end financial reporting for the finance team as needed.

Tools and Environment: MS Access 2013, SQL Server 2012, SQL Server 2014, MS Windows Server 2012, SSIS packages

Konica Minolta Business Solutions July 2013 - December 2013

Financial Analyst/Application Programmer (6 Month contract)

* Analyzed the integrity of financials in the company’s newly implemented SAP system. To carry out the process.
* Developed the User Guide along with the Technical Documentation, along with testing scripts
* Created MS Access applications using VBA (macros) together with C++ IOStreams libraries to help extract and analyze new data coming from SAP and reconcile new data streams to data in the old system; various reports were developed to output final results in various formats: Access reports, Excel report, xml files and text files.

Tools and Environment: MS Access 2013, SQL Server 2012, SQL Server 2014 and SQL Server 2016, SSIS packages, Crystal reporting,

Brinks Canada Inc. July 2012 – February 2013

Sr. Financial Analyst/Application Programmer (8 month contract)

* Assisted with month end financial analysis/reporting duties.
* Performed Analysis of financial trends for all operating departments, analysis of P&L expenses and payroll accounts, reporting of financial results for all branches and divisions.
* Participated in a 3-year rolling forward plan/forecast, analysis and reporting. In additions to month end activities.
* Pioneered on developing Essbase VBA applications to help shorten the time required for month end reporting duties: resulted in shortening the reporting time from 5 days down to 20 minutes.
* Worked on developing VBA MS Access apps (MS Access 2010) for accounting department.

Sun Life Financial

Reporting Analyst - Sun Life Procurement (Contract) March 2010 – December 2011

At Sun Life Financial, my main responsibility was to manage the procurement savings infrastructure and savings reporting processes. I prepared monthly and quarterly reports, developed MS Access databases and created Excel Macros using VBA to facilitate month end reporting, created database management tools used by departmental users.

Shoppers Drug Mart

Reporting Application Developer (18 month contract) July 2008 – December 2009

At Shoppers Drug Mart, my main responsibility was to develop financial reporting tools and applications that use by end users and management team. These tools were deployed at the 1000 Shoppers Drug Mart stores throughout Canada.

1. Developed reporting tools for store financial reporting, planning and forecasting.
2. Developed C++ library packages using STL algorithms that make it possible to process large amount of data without the use of an underlying database server.
3. Utilized MS Excel, MS Access including visual basic macros to revamp existing reporting packages.

* Worked with Crystal reports developed numerous productions, financial reports using different reporting tools Crystal Reports.

1. Developed software fixes and patches (for 1000 store templates) in response to last minute change after the templates were dispatched.
2. Developed and wrote a business case for the architectural redesigns of new planning template reporting and submitted to IT management and directors. The business case was approved.
3. Collaboration with IT group in developing this new approach to financial reporting.
4. Performed various ad hoc financial analysis, reporting and presentations, and developed software solutions for processes improvements within retail accounting department.

Accomplishments:

* Architected, developed, and programmed a Ceridian payroll processing and reporting system using **MS Access 2010**.
* Architected, developed, and coded Associate Optional Equity financial reporting model for 1000 stores using Visual C# and .NET data object classes that interface with a backend Oracle database.
* Architected, developed, and programmed aging inventory and Distribution Center claims applications using Visual C#.
* Developed customized versions of mass e-mailing applications for retail accounting department.

Sears Canada Corporation

Sr. Financial Analyst / Special Projects October 2006 – December 2007

At Sears Canada, my main objective for the contract assignment was to **implement and design a buyer scorecard reporting system** for use by senior executives to measure performance objectives and to identify opportunities. During period ends, I also assisted Sears’ financial associates in performing period end financial analysis for the buyer group and assessed the retail sales performance in various product lines purchased by the buyers.

AMD Canada Corporation (formerly ATI Canada Corporation)

Senior Costing Analyst (15 Months) June 2005 – August 2006

At ATI Canada, my main objective was to design a costing system using **MS Access 2010** that accurately captures the movement of cost through the process chain. Additionally, my position required that I assist with month end financial analysis duties. I worked with a group of cost accountants, financial analysts, and IT specialists.

Details of my involvement with ATI Canada are as follows:

1. Developed inventory costing app using **MS Access 2003.**
2. Responsible for processes improvements and systems changes for ATI Costing department.
3. Performed month end analysis duties with regards to revenue and gross margin analysis using a variety of analytical methods: SQL database, Excel financial models, discussions with business associates within departments and throughout the regions; determined reasonability of sales price, volume, mix variance, and inventory movements with respect to cost of good sold.
4. Identified critical reconciliation point for SOX audit (during year end and special internal audits).
5. Analyzed process costing; interviewed process owners on system specifications; designed and implemented system solutions to various costing processes.
6. Prepared Visio flowcharts (MS Visio 2003) documenting critical costing processes and critical reconciliation points (for SOX).
7. Designed Visio flowchart and outlined coding strategies and optimization for costing processes that needed improvement.
8. Designed and developed programs for the approved costing processes. Language used for the above included **MS Access 2003**, Visual FoxPro 9, ActiveX components coding using either VB or C++. Note: I used SAP (oracle) as a back end system for my data.

Accomplishments:

* Designed and implemented system solutions which reduced month end processing time from 5 days cycle to 20 minutes.

EDULINX Canada Corporation May 2002 – February 2005

Financial Analyst

(Student loan processing subdivision of CIBC)

At EDULINX Canada Corporation, my involvement was mainly the financial analysis of Canada student loan processing fees and CIBC’s direct student loan investment portfolio and the related rates of return with assumed risk on investment; analysis of loan defaults with respect to different classes of loan portfolio. I was also involved with a variety of processes improvement projects and other special project analysis such as the acquisition and consolidation of subsidiary businesses.

Details of my involvement with EDULINX Canada are as follows:

* Performed general financial analysis and month end legal entities attestation to the parent company, CIBC.
* Analysis of Canada and CIBC student loan processing fee revenues in various types or classes of student loans; analysis of volume of loans, fees and mix variance to plan, forecast and prior actual and determine the causes and reasonability of the variances for attestation.
* Responsible for the month end financial reporting and financial submission to parent company CIBC.
* Developed numerous productions, financial reports using different reporting tools (Crystal Reports, and Power-BI)
* Participated in the financial analysis of special projects, including the purchase transactions and consolidation of subsidiary student loan businesses to CIBC.
* Presented financial information and executive summary write-ups to management within the organization.

Accomplishments:

* Architected, designed, coded, and implemented EDULINX’s legal entities reporting system using Visual Basics 6.0 and Crystal Reports 9.0’s Report Designer Component.
* Architected, designed, coded, and implemented Canada Student Loan tracking program using Visual Basic .NET Object Oriented Concepts and Design (.NET framework 2.0).
* Architected, designed, coded, and implemented EDULINX version of CIBC Risk Adjusted Return on Capital reporting program using Access 2000 user interfaces, ADO, and other ActiveX COM + add-in.
* Developed detailed monthly and quarterly volume, rate, and mixed variance spreadsheet analysis model.
* Other projects included ACCPAC automation, ActiveX components creation and implementation, month end reconciliation program, Ad hoc projects.

CFM Majestic Corporation 2001 – 2002

Financial Analyst (Contract)

Prepared and analyzed CFM month end consolidated financial statements, CFM holding companies, and CFM Consolco. Systems Used: Baan; Hyperion FDC Comshare, Essbase.

BPB Westroc Inc. 1998 – 2001

Senior Accounting Analyst

Responsible for all aspects of month end reporting and analysis, including consolidation and preparation of financial reports to the parent company in BPB Westroc UK and to local management and other ad hoc financial analysis projects as assigned by senior management; assisted in the preparation of Westroc 3-year plan.

Accomplishments:

* Reduced FDC Comshare financial reporting time by 50% to meet tighter month end reporting deadlines through implementation of various technology measures.
* Designed BPB group companies Regional Reporting system using FDC Comshare database.
* Automated Westroc’s pension plan tracking and reporting system, including the preparation of quarterly and yearly company pension reports using Access 97 reports.
* Designed a management incentive measurement system for the HR department.
* Coordinated annual audit, including preparation of related schedules and analysis.
* Designed spreadsheet models to calculate and submit monthly GST and PST tax returns to provincial government authorities.

EDUCATION

Chartered Professional Accountant (2014); Certified General Accountant (1998)

Bachelor of Business Administration with Honours (1992)

Brock University, St. Catharines, Ontario