SYSTEM ANALYST, MR. ROBERTO CARON
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PERSONAL: Citizenship: Canadian
                  Spoken: English / French
                  Writing: English / French

EDUCATION: CEGEP Degree in Computing, Sainte-Foy College, Quebec, 1989

                  Insurance Course LOMA 1/ 2, Quebec, 1990

                  Oracle Advanced Designer-Developer/2000 (Form, Reports,PL/SQL), Multi-Hexa, Quebec, 1997

                  Roberto Caron's Company is certified Controlled Good

SUMMARY:

Mr. Caron is a System Analyst with 28 years of experiences who specializes in analyzing, designing, implementing and maintaining information systems. He uses analysis and design techniques to solve business problems using information technology. He helps organizations identify their needs for improvement and recommends proper technologies to achieve the client's goal. He was on projects involving network configuration ensuring installation, configuration and testing was conducted appropriately. Mr. Caron has utilized a wide variety of OS environments, computer hardware and software (both commercial off the shelf (COTS) and open source). He also has expertise with databases, programming languages, web environments, virtual environments and cloud systems. In many projects, he had a lead role implementing solutions on both small and large teams. He was involved to play Team Leader's roles as well.

EXPERIENCE:

Project 30
February 2018 to August 2018 (6 months)
Defense MDA Corporation for the Research and Development Canada Defense (DRDC) : Implementation of the new RCM (Radarsat Constellation Mission) Specification in GDAL
Programmer/Analyst/System Analyst Employee
Project Value: ??
Team Size: 4 members
The RADARSAT Constellation is the evolution of the RADARSAT Program with the objective of ensuring data continuity, improved operational use of Synthetic Aperture Radar (SAR) and improved system reliability. The three-satellite configuration will provide daily revisits of Canada's vast territory and maritime approaches, as well as daily access to 90% of the world's surface. The mission is currently in development, with the satellites' launch planned for 2018. MDA has been mandated to implement the new RCM specification in the well-known open source GDAL (Geospatial Data Abstraction Library).   Mr. Caron is responsible:
• To prepare the VS 2015 environment
• To document all steps to change the GDAL
• To implement the RCM specification

- To retrofit the old MDA-GDAL source code version 1.9 to the current 2.2.4

- To test against make-up RCM data

- Environment:
    - Source Control: GIT
    - Languages: C/C++/C#/Python
    - OpenEV and IAPro
    - GDAL

Project 29
October 2016 to February 2018 (17 months)
Defense Research and Development Canada Defense (DRDC) : IMPLEMENTATION OF ADD-ON TOOLS IN ARCMAP 10.3 FOR EXPLOITATION OF RADARSAT DATA
Programmer/ˆ Analyst/System Analyst/GIS Analyst/Developer Consultant
Project Value: 1/4 Million
Team Size: 5 members
The Space and ISR Applications (SIA) Section at Defense Research and Development Canada, Ottawa Research Centre, uses Esri's ArcGIS 10.3 (Desktop Advanced) with Spatial Analyst and Data Interoperability extensions on a Windows 7 operating system. DRDC Ottawa has a focus on raster data from Synthetic Aperture Data (SAR), especially that from the RADARSAT-2 (R2) satellite and the upcoming RADARSAT Constellation Mission (RCM; three satellites, 2018 launch).

DRDC Ottawa is developing add-on modules for ArcMap 10.3 for processing and exploitation of R2/RCM data for Intelligence Preparation of the Battlefield (IPB; for example, shoreline extraction and terrain classification) and for generation of Tactical Decision Aids (TDAs; for example, a Cross County Mobility map overlay).

The "RADARSAT toolbar for ArcGIS" is developed in C#, and it makes use of DRDC Ottawa's custom version of GDAL (the Geospatial Data Abstraction Library; see http://www.gdal.org/) and existing algorithms in DRDC Ottawa Image Analyst Pro (IA Pro) source code (C, C++ and Python). Note that GDAL and IA Pro source code is provided as GFE for all requested add-on tools; these provide core functionality for the add-on modules. The newly-developed add-on modules must run with node-locked or floating-network license for ArcGIS 10.3 (Desktop Advanced) with Spatial Analyst and Data Interoperability extensions. (DRDC Ottawa does not use the Esri Developer Network, EDN, software.)

This ArcGIS development work shall be done at the Contractor's site using the Contractor's licenses for ArcGIS 10.3, their ArcObjects software developer kit (SDK), their C++/C# software development tools (Visual Studio Professional 2012 and .NET Framework 4.0) and "GIT" for software configuration management (see https://git-scm.com/). This work will build on Version 1.0 of the "RADARSAT toolbar for ArcGIS", and this work includes software development and user documentation.

Mr. Caron had these following responsibilities:

- .NET Team Lead to implement a custom tools solution in ArcMap 10.3 via icons on the RADARSAT toolbar, making use of existing Python, C or C++ code from DRDC Ottawa Research Centre. Test for a variety of RADARSAT-2 data and products. Demonstrate to DRDC Ottawa Research Centre and the CAF/DND, collect feedback, discuss with the Technical Authority (TA)

- Add-on modules must run with node-locked or floating-network license for ArcGIS 10.1 (Desktop Advanced) with Spatial Analyst and Data Interoperability extensions. Technical support on site at DRDC Ottawa Research Centre and CAF/DND (if required) to install the RADARSAT toolbar. Here are some of the principal scientific modules
    - Point Of Target Analysis

- Distributed Target Analysis	
- Canny Edge Detector	
- Orthorectification	
- Quad Polarization	
- Bridge Clearance	
- Tower/Building Height Measure	
- Shoreline Extractor	
• All program code revised or developed is to be thoroughly documented and tested.	

• Environment:
  o Source Control: GIT
  o Languages: C/C++/C#/Python
  o ArcGIS Objects	

Project 28	
November 2017 to Mars 2018 (5 months)	
Agri-Geomatics(AAFC) : VSMB (Versatile Soil Moisture Budget model) Project	
Programmer/Analyst/System Analyst Consultant	
Project Value: ??	
Team Size: >5 Team Members	

The Versatile Soil Moisture Budget (written in VB.NET) was first proposed as a computerized conceptual model by Baier and Roberson (1966). Three technical bulletins were later published (Baier et al. 1972; Baier et al. 1979); Dyer and Mark 1984) to provide users with the most updated version and documentation. Agri-Geomatics implemented the concept in VB.NET. Since Agri-Geomatics changed their development platform orientation from .NET to Python. The goal was to bring and to convert a .NET Application into a Python (2.7+ and/or 3+) batch tool capable to run computation using parallelism.
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Mr. Caron had these following responsibilities:
• To analysis the current system written in VB.NET
• To document the system
• To re-architect the system and to design work-flow
• To develop/convert into a new python batch job capable to run under Windows or Linux
• Add a new calculation method called "Baier Robertson"
• To test the system and to make sure results are matching the current system
• To maintain and to evolve the system with new business requirements
• Environment:
  o Source Control: GIT
  o Languages: VB.NET/Python
  o Win 7	

Project 27	
October 2016 to November 2017 (13 months)	
MGIS : GeoMosquito/Good2Drive	
Programmer/Analyst/System Analyst/Architect/GIS Developer /Mobile Phone Developer Consultant	
Project Value: Not evaluated yet	
Team Size: >5 Team Members	

Geo World Outdoors is now controlled by MGS Inc. Finishing up the GeoMosquito Project described in the project 25. Good2Drive is a Smartphone App that measures your cognitive ability through a 60 to 90 second test. Once you take the test, it analyzes the results and tells you if you're good to drive or not. Even if you haven't had a drink, the test will tell you if are too tired to be behind the wheel. The US client wanted an Agile Development and weekly scrums to make sure their investment to well spent. See: http://good2drive.com/ Mr. Caron is still responsible: - To implement an infrastructure on Amazon Web Service (AWS) Cloud Service to support a Geographical Map - To review system requirements and understand what the AWS platform can offer and come up with a cost effective architecture that leverage AWS service while meeting the system requirements - To develop a Web API framework using AspectJ and caching mechanism to leverage AWS S3 and limit traffic between the Web Application Server and AWS S3 storage - To develop C# interface with PostGIS to support geometry transformation - To develop C# to design a Web Interface to consume Web API - To integrate the solution with a variety of client applications - To develop a Mobile Application using HTML, React Javascript Library, TouchStoneJS Javascript Library and Google Maps API running on iPhone or Android. - To develop JAVA Web Service Interface to print maps - To troubleshoot issues in production and to fix them - Environment: - Source Control: GIT - Languages: Java/C#/HTML/Javascript/ExtJS/Google API/ESRI Javascript API/ OpenLayers/JSTS Topology Suite/Encryption Scripts/React/TouchStoneJS/ - Spring Framework 4 / Hibernate - Eclipse - PostgreSQL / PostGIS - Tomcat/Apache - REDIS - AWS Cloud - Win 7	

Project 26
February 2015 to October 2016 (20 months)
Department of National Defense (DnD) : MPMCT
Programmer/Analyst/System Analyst Consultant
Project Value: $100 to 240 Million
Team Size: >5 Team Members
The Business Objectives of the Military Personnel Management Capability Transformation (MPMCT) project are to provide: Integrated and simplified policies, processes and procedures to better support CAF components, sub-

components, commanders, men and women in uniform;
- A modern, integrated and agile MPM system providing for multiple modes of access including a self-serve capability; and
- An integrated system of record for core MPM data.

The MPMCT Project will deploy Guardian which is the Human Resources (HR) and Pay solution offering a modern, flexible and integrated workforce management system that will provide accurate, reliable, responsive and trustworthy information to deliver sustainable value to current and future DND/CAF members. One part of the project is to define future processes through PoC (Proof Of Concept).

Mr. Caron has many roles and has the following responsibilities:
- To analyse, to install and to document the Oracle Advanced Security Transparent Data Encryption (TDE) to enforce data-at-rest encryption in the database layer.
- To analyze and to document a PeopleSoft 9.1 incremental synchronization scenario and also, a full synchronization scenario with another PeopleSoft 9.1 instance.
- To analyze and to document a scenario to update PeopleSoft information. Using Oracle SOA (JDeveloper) to develop a Java web interface to update person data record information in a context of a disconnect network.
- To analyze and to document a PeopleSoft 9.1 incremental synchronization scenario and also, a full synchronization scenario with another PeopleSoft 9.2 instance.
- To analyze and to document and to develop a proof of concept demonstration the Integration of the Canadian Forces Tasking , Plans and Operations (CFTPO) with DND new Guardian Human Resource Management System running on PeopleSoft.
- Environment:
    - Languages: Java/SQL/PL-SQL
    - Oracle & Oracle Advanced Security Transparent Data Encryption
    - Win 7
    - PeopleSoft 9.1/9.2

Project 25	
March 2013 to February 2015 (23 months)	
GeoWorld Outdoors (start-up company) : GeoMosquito/Fishtacular	
Programmer/Analyst/System Analyst/Architect/GIS Developer Consultant	
Project Value: Not evaluated yet	
Team Size: >5 Team Members	
Geo World Outdoors is a start-up company involved in the Geography Information System (GIS). GeoMosquito Project is an innovative platform that integrates real-time microclimate monitoring for mosquito control, geospatial intelligence, and smartphone mobile technologies in order to digitally optimize operations and workforce deployment. The GeoMosquito mobile platform is focused on providing real-time communication across districts, states and regions in order to optimize human health, and track mosquito populations. Fishtacular Project is a geo-enabled platform for the fishing enthusiast. Available for free through modern browsers and smartphones (Android and iPhone), Fishtacular enables enthusiasts to:	

- Find nearby lakes, fish species, campgrounds and more; - Help identify fish species through innovative functionality; - Record the time, day, location and fish species for every catch; - Keep favorite fishing holes private, or share them with other anglers; - Look up recipes for various fish species, and read fishing-related blog articles; - Connect with other fishing enthusiasts; and - Share catch photos and stories with others using Facebook, Twitter and Google+ With the help of our geo-enabled platform, Fishtacular brings geographic knowledge of the customer, thus allowing Vendors to: - Communicate and deliver geo-targeted advertisements; - Provide broadcast messaging via social media and video stream; and - Better engage customers with personalized content and deals within their geographic area. Both projects had to be developed using Agile to quickly get products done. Mr. Caron is still responsible:	
To implement an infrastructure on Amazon Web Service (AWS) Cloud Service to support a Geographical Map	
To review system requirements and understand what the AWS platform can offer and come up with a cost effective architecture that leverage AWS service while meeting the system requirements	
To develop a Web API framework using AspectJ and caching mechanism to leverage AWS S3 and limit traffic between the Web Application Server and AWS S3 storage	
To develop C# interface with PostGIS to support geometry transformation	
To develop C# to design a Web Interface to consume Web API	
To integrate the solution with a variety of client applications	
To develop JAVA Web Service Interface to print maps	
To troubleshoot issues in production and to fix them	
- Environment: - Source Control: GIT - Languages: Java/C#/HTML/Javascript/ExtJS/Google API/ESRI Javascript API/ OpenLayers/JSTS Topology Suite/Encryption Scripts - Spring Framework 4 / Hibernate - Eclipse - PostgreSQL / PostGIS - Tomcat/Apache - REDIS - AWS Cloud - Win 7	

Project 24
July 2012 to March 2013 (9 months)
Agriculture Canada (AGS) : eMaf Project – Enterprise Mapping Application Framework
Programmer/Analyst Consultant and GIS Programmer/Analyst Consultant
Project Value: > $5 Million

Team Size: >20 Team Members

In order to modernize the geospatial infrastructure used by the organization, multiple projects with a different scope and objectives were started simultaneously:

• Enterprise Mapping Application Framework (EMAF) – Create a less complex approach to web mapping applications by creating a framework or shared library that utilizes ESRI commercial off the shelf map server engine (ArcGIS Server) and associated Application Programming Interfaces (API's).

• Self-Serve Mapping Platform (UMAP) – Using ESRI ArcGIS Online Software as a Service create a self-serve destination for departmental mappers where they can make their own 'mash up' maps with key organizational layers and other information available from other systems.

• Data Dissemination – Provide AAFC with the ability to publish, both internally and externally, AAFC Geospatial data holdings in a way that makes them easy to discover, access, and use.

• AIR – Agroclimate Impact Reporter Phase 2. The goal was to understand the impacts of weather and climate on agricultural production and the agricultural industry is critical to support decision making within AAFC.

• Biomass – Industrial uses of herbaceous and woody biomass can expand market opportunities and provide needed diversification of the rural economy.

Mr. Caron had the following responsibilities:

- Define a Software Technical solution to create best practices to develop Java Web Services with an architecture called Java Enterprise Mapping Application Framework ('jeMaf)
- Build a VMware Solution to mimic the production software technical environment and to ensure every programmer will develop against the VM within the deployment cycle.
- Write user requirement documents
- Design and build the web service in Java, and convert Python Code and old Stored Procedures in Java in order to have one solution
- Provide Network Management Interfaces and operations with other Government Web Services and Oracle databases
- Work with FIN staff for questions/clarifications required
- Made a VM Ware Image running Red Hat (Linux) to test and to compile Java code
- Use JUnit for testing and JMeter for automated testing
- Write deployment documents for WebLogic
- Install, Maintain several Java Web Services software components to:
  - ✓ Transform XML data;
  - ✓ Analyze ESRI Map Service Information;
  - ✓ Test the webservices under multiple operating systems and hardware combinations
  - ✓ Configure the simulation of a WMS Proxy;
  - ✓ Calculate Biomass;
  - ✓ Calculate AIR data (Agro-Climate Impact Report);
  - ✓ Analyze ArcGIS Online Web Application;
  - ✓ Dynamically generate WEB Templates (Web Experience Toolkit) which is a reusable component for building and maintaining innovative websites.
- Develop Client Application in HTML/Javascript using ExtJS and the ArcGIS Javascript API to:
  - ✓ To provide an application where peoples can add where they were born;
  - ✓ To allow a user to view a Web Application ID;
  - ✓ To deploy and still maintains a ESRI Product called 'Geoportal' for searching metadata;
  - ✓ To write IT Technical documents to support all web applications.
- Maintain an ESRI Product called 'Geoportal' for searching metadata
- Write IT Technical documents to support all web applications.
- Environment:
  - o Source Control: SubVersion / BugZilla
  - o Languages: Java/Javascript/HTML/Python/PL-SQL
  - o Spring Framework 4 / Hibernate / ExtJS / JQuery

- o Eclipse
- o Tomcat/Apache
- o WSDL/SOAP
- o Oracle
- o Win 7
- o ArcGIS Online / ArcGIS Javascrip API
- o VM Ware
- o Geoportal Server

Project 23
December 2010 to June 2012 (19 months)
Canadian Institutes of Health Research (CIHR): CCV Renewal Project
Programmer/Analyst/Architect/Team Lead Consultant
Project Value: > $2 Million
Team Size: >10 Team Members

The Canadian Common CV (CCV) is a web-based system that provides Researchers with a single, common approach to gathering CV information required by a network of federal, provincial and not-for-profit research Funding Organizations. The CCV's processes, procedures and capabilities allow the input of CV information by Researchers and the extraction of the CV data (with consent from the Researcher) by Member Agencies to support its funding application process. The client asked for an Agile Development cycle to provide inputs to their agencies.

Mr. Caron's mandate was to analyze the new web applications using open source frameworks and MySQL to provide the lowest total cost of ownership (TCO) for CIHR.

The CCV clients wanted an Agile Development for a quicker turn around. Internally, I had daily scrum (maximum 10 minutes) to go over issues or show stopper.

Mr. Caron worked as an Application/Software Architect, with the mandate to analyze the new web applications and to develop and to implement a web infrastructure using open source frameworks and MySQL, in order to provide the lowest total cost of ownership (TCO) for CIHR. The CCV infrastructure was unique in a sense that the no web pages were developed! Everything was driven by a metadata schema which is the metadata it-self was dynamic. It allowed the client to add fields, sections, and new field type with reference tables to populate drop-down. Actually, any tables defined were also dynamic. On the top, a backward mechanism was developed to ensure that past data can still understood by the system. Based on this specification, two systems were developed: an Administrator and a Client one. The system had to manage hundreds of concurrent users per minute. This system is still in service after 6 years (https://ccv-cvc.ca/) and must be available 7/7 and 24/24. Another service was developed to use FTPS to transfer information files from the CCV to FTPS servers running on agencies server.

Mr. Caron had the following responsibilities:

- Support, review and provide comments to Business Analysts
- Identify and understand the old CCV System to identify points of failure.
  - o Analyse server configurations, their performances and how the servers were maintained.
  - o Report on the viability of the environment.
- Define a new technical infrastructure solution to ensure resiliency, performance, no single points of failure and that the system can meet 99.55% uptime.
- Create deployment plan to increase servers capability over time and ensure the web application interacts properly with a new UI Interface based on CLF2 look and feel.
- Maintained and administered the VMware licensed software
- Create a DEV and a TEST environment to simulate Production.
  - o Install, configure, maintain, test and administer all VMware network management operations and licensed operating system configurations on machines based on the Red Hat Operating System.
  - o Network management of numerous hardware and software components within a protected B private

network
- o Install, configure and test hardware network cards to access back end servers.
- o Maintain Apache, Tomcat and MySQL open source software applications on Unix and Windows operating systems. .

- Install, configure and administer licensed applications such as MS Office and to ensure the Operating System was connected to printers.
  - o Installed, configure and maintain Bugzilla, Apache, Sub Version and MySQL and Maven open source software applications to allow a batch script to build the web applications and to deploy on Red Hat operating systems using numerous supported hardware
- Write documents to support business development.
- Design new Object Relational Mapping (ORM) to replace Hibernate for a fast and small memory footprint.
- Attend meetings to present the new architecture and new Web UI.
- Work with Shared Service Canada (SSC) to prepare the new production environment.
  - o Configured SSL Certificate on an Apache Red Hat operating system.
  - o Installed, configured, tested and maintained Apache, Tomcat and MySQL open source software applications on several Red Hat operating system machines using an Apache Load Balancer.
- Write scripts to automatically install and configure software applications (WAR files) within Tomcat.
- Use performance tools (JMeter and JVisual VM) to stress test the whole web infrastructure and to ensure the performance was acceptable.
- Maintain the entire production environment during several development phases.
- Implemented JIRA to let the client enters theirs problem. Troubleshooting bugs in production, analysing impact, writing document, fixing code and testing
- Use JUnit for testing and JMeter for automated testing
- Provide DBA support to maintain MySQL open source software application databases.
- Use JAXB to generate code to read XML document based on XSD Schemas. Simplify XML integrity.

- Environment:
  - o Source Control: SubVersion / BugZilla / MAVEN
  - o Languages: Java/Javascript/HTML/SQL/PL-SQL
  - o MVC / Spring Framework 4 / ACEGI Security Framework / JQuery / Hibernate / JAXB
  - o Eclipse
  - o Tomcat/Apache
  - o WSDL/SOAP
  - o MySQL/Oracle
  - o Win 7/Red Hat(Linux)/VM Ware

Project 22
August 2010 to November 2010 (3 months)
Public Works and Government Services Canada (PWGSC): LIMS Project
Programmer/Analyst Consultant
Project Value: > $.5 Million
Team Size: >3 Team Members
The Application Management and Information Technology Services Sector (AM&ITOS), of the Information Technology Services Branch (ITSB) of Public Works and Government Services Canada (PWGSC) operates the Leave Information Management System (LIMS), which is a client-server application that is accessed by approximately 14,000 PWGSC employees to generate leave and overtime requests. PWGSC management uses LIMS to approve the leave and overtime requests. In addition, there is year-end processing related to carry-over of leave, sick days, including year-end cash outs. The project objective was to upgrade the LIMS corporate client server application to commercially supported

products (such as, Microsoft Visual Basic.Net 2008 (also known as VB 9.0), SAP Crystal Reports 2008 and Microsoft Access 2007) and development framework so as to ensure that LIMS functions with commercial applications and tools that are supported by the software publishers.

Fujitsu's solution included the use of Fujitsu's "CoolCat" conversion tool to convert legacy Visual Basic code to .Net. Mr. Caron had the unique opportunity to be the first implementer of Coolcat in Canada and represent Fujitsu as the leader in this technology.

Many challenges were considered during the conversion but three had were critical for success:
- ✓ Convert an old ActiveX EXE to .NET WCF;
- ✓ Keeping as much code logic as possible;
- ✓ Respecting as much as possible the same Look and Feel.

The client was impressed with the work performed by Mr. Caron and Fujitsu.

Mr. Caron's responsibilities included:
- To write documents
- To reach consensus on a new .NET solution within PWGSC's Project Manager, the Security Group, the Lead Programmers, the Sub Version Administrator and Programmers team
- Maintain and administer SubVersion and Bugzilla open source software applications under multiple operating systems and hardware platforms
- To supervise programmers and to ensure the development is following the architecture
- To perform regular installations and configurations of the custom software applications including the testing and maintenance
- Environment:
  - Source Control: SubVersion / BugZilla
  - Languages: VB.NET
  - Win XP

Project 21
April 2010 to July 2010 (4 months)
Canada Deposit Insurance Corporation (CIDC): PAYOUT (IIS-.NET) / Customer Care (SharePoint)
Programmer/Analyst Consultant
Project Value: > $1 Million
Team Size: >10 Team Members

CDIC helps keep Canada's financial system strong. They work for Canadians—by insuring their savings in case a bank or other CDIC member institution fails. The Payout Web UI Application helps CDIC to manage failing bank. The client was pretty impressed about the quality and how issues are solved.
 	
 Mr. Caron had these responsibilities:
 • To evaluate the testing strategy to automate test cases and increase the Payout System's reliability
 • To evaluate tools like Selenium, Fitness and WebTest.
 • To write and execute scripts
 • To fix bugs in the Payout System and propose fixes for major issue in the web application
 • Environment:
     o Languages: VBA Excel
     o Win XP

Project 20
April 2009 to April 2010 (12 months)
Agriculture Canada (AAFC): AgMaf (Agriculture Map Application Framework)
Programmer/Analyst/System Analyst/Architect/GIS Consultant
Project Value: > $100 Million
Team Size: >5 Team Members

Agri-Geomatics builds on the major crown project NLWIS (National Land and Water Information Service) started under the APF and completed March 2009, Agri-Geomatics is a seamless transition of NLWIS into a national service delivery organization within AAFC providing geomatics services. Geospatial decision tools and agri-environmental information will be provided to support local and regional land-use planning and management. Agri-Geomatics clients, including producers, industry groups and government officials require online access to information, analysis and interpretation on soil types, landscape features, hydrology, land use and other data to enable them to better manage the land and water resources under their control.

Mr. Caron had the following responsibilities:

- Research and development (R&D) using Oriented Object principles and service oriented architecture principles to allow external client to consume Agri-Geomatics web services.
    - Document and implement naming convention,
    - Maintain and administer open software application source libraries
    - Migrate Spring 2 to Spring 3 to use WS-JAX to facilitate integration with Spring using annotation.
    - Work with analysts and Programmers located across Canada.
- To develop a new Javascript Mapping application which called Agriculture Mapping Application Framework (AgMaf) to display to the public map information
- To develop an Inversion of Control (IoC) component (integrated to Spring) to manage XML Configuration (language, resources, text …) to decouple Spring Web Services from external resources.
- To develop JSF pages to allow the client to invoke web services in a simpler fashion
- To research and to develop RESTful Web API/SOAP Web Services using 3 and to allow JAX-WS to be reached from the Internet and/or Agriculture Canada's Intranet and also JAXB to generate code to read XML document based on XSD Schemas.
- To develop a Web Service Template generator to quickly build new web service running under either Tomcat or Oracle Application Server
- Interfacing with AgMaf showing Maps with a Legend using a Web Service built to make WMS/WFS Requests call to Map Server
- Installed, configured and tested several Network Managed Web Services operations using either JNDI or Oracle JDBC connector software to retrieve Oracle 9i and Oracle 10g data to format in XML according to the GDAS specification
- Maintain and administer a Java Geoprocessing software application running on a licensed ESRI ArcGIS Server 9.3.1.
    - Converted ESRI Shape files to GeoJSON and vice-versa, running on multiple operating systems
    - Converted ESRI Shape file to GML and vice-versa
- Installation, Configuration, testing and maintenance of a Widget Manager software application to handle dynamic Javascript plugs-in using ExtJS and OpenLayers, designed to run on all multiple operating systems and hardware combinations
- Developing a Drawing Tool in javascript using ExtJS and OpenLayers to draw features like Polygons, Circles, Points, Texts
- Maintaining WMC XSD Schema and XSD extension and to maintain Java Parsers. Hibernate was used to generate a parser on top of Oracle DB to consume data
- Environment:
    - Source Control: SubVersion

- o Languages: VB/C#/Java/Javascript/ASP/HTML/SQL/PL-SQL
- o JSF / Spring Framework 3 / JAXB / ACEGI Security Framework / ExtJS/ JQuery / OpenLayers
- o Eclipse
- o Tomcat/OAS
- o WSDL/SOAP
- o Oracle
- o Win XP
- o ArcGIS

Project 19
March 2005 to March 2009 (48 months)
Agriculture Canada (AAFC): National Land and Water Information Service (NLWIS) – Part II
Programmer/Analyst/System Analyst/Architect/GIS Consultant
Project Value: > $100 Million
Team Size: >30 Team Members

Major crown project NLWIS (National Land and Water Information Service). NLWIS will provide land-use decision-makers with Internet access to land, soil, water, air, climatic and biodiversity resource information to support an environmentally sustainable agricultural sector. The Web portal at GeoTec 2006. M. Caron had to play all kind of roles as Software Analyst, System Analyst, Java Programmer and GIS Java Programmer. M. Caron had to work with analysts and Programmers located across Canada.

Mr. Caron had the following responsibilities:
- To maintain and administer a JSF-based Web UI software application that presented data from a licensed Oracle database using Hibernate technology.
  - o This Web UI helped to run indicators which are mathematical solution written in other languages
  - o The software application was designed to run on multiple operating systems
- To develop JSF interfaces to manage, start and top indicators in an asynchronous way.
  - o These interface were running under either Tomcat or Oracle Application Server
- To support network management operations including installation, configuration, testing and maintenance of the Map Server software that ran on various hardware platforms
- To develop a Service Oriented Architecture to consume other web services and provide services to be consumes by other
- To develop a Web UI Application Registry using the Struts Framework to present Oracle data using Hibernate technology
- To maintain and administer interfaces to licensed software including ArcIMS to display map.
  - o These were running under either Tomcat or Oracle Application Server
- To maintain and administer AXIS2 Web Services to produce Map from licensed software ArcIMS and use ESRI ArcObjects
- To maintain and administer AXIS2 Web Services to support the translation workflow.
  - o These were running under either Tomcat or Oracle Application Server
- To maintain and administer WMC XSD Schemas extension and to generate JAXB Java Parsers
- To maintain and administer a Metadata Editor: Desktop screens using VB6 and ArcObjects
- To develop WFS/WMS services to discover maps
- To develop a Metadata Editor in VB6 for ESRI ArcMap desktop
- To maintain and administer an XSLT to consume AXIS2 Web Services to transform data
- To maintain and administer a product to transform XML to Excel using XSL/XSLT for the Translation Group.

- Environment:
    - Source Control: SubVersion
    - Languages: VB/C#/Java/Javascript/ASP/HTML
    - MVC / Spring Framework / JAXB / ACEGI Security Framework /JQuery
    - Eclipse
    - Tomcat/OAS
    - WSDL/SOAP/AXIS2
    - Oracle
    - Win XP
    - ArcGIS

Project 18
June 2004 to February 2005 (20 months)
Agriculture Canada (AAFC): National Land and Water Information Service (NLWIS) – Part I
Programmer/Analyst/System Analyst/Architect Consultant
Project Value: > $1 Million
Team Size: >15 Team Members

This project is a Major Crown undertaking funded by Treasury Board of Canada. M. Caron explored new ways of implementing GIS functionality through open-source software. The project consisted of several components: expertise, including the human resources to interpret, collect and maintain the land and water information system. Applications that meet the user need to support decision making. Infrastructure, including the hardware, software, and networks that permit connectivity of the system to the Internet. Partnerships with other government agencies, industry and farm groups who need and own land and water Information.

Mr. Caron had these responsibilities:

- To convert Web Tools to support AAFC Schema and to give mechanism to translate XML document from English to French, French to English using Excel Schema with stylesheets (XSLT)
- To develop a distributed computing network to simplify researchers life to invoke mathematic models
- To assume the role of Application Architect where he researched and developed, using Oriented Object principles
- To develop a new Web Services technology like Web Processing Service (WPS), this processes spatial operation and much other functionality. This Web Services can be reached from the Internet and/or Agriculture Canada's Intranet
- To develop a Geolinked Data Access Service (GDAS) Web Service which provides a very simple way to implement on-line access to the vast number of data collections that contain geographically related information
- To develop a Geolinking Service (GLS) Web Service which provides a mechanism to take geolinked data delivered over a network, and either incorporate it into a database, or to process it in some fashion that supports visualization or modeling
- To use Spring framework and ACEGI Security Framework to allow clients to develop their own WPS services with a WPS Eclipse Plug-In and to access a secure channel
- To develop WSDL/SOAP layers on top of WPS and GDAS to extend these specifications to any SOAP client. This work has been added to the WPS Specification 1.0.0 (Available on the OGC Web Site)
- To develop many Web Services operations using Oracle JDBC connector to retrieve Oracle 9i and Oracle 10g data to format in xml according to the GDAS Specification
- Additionally, Mr. Caron builds a GUI prototype with ArcObject in C# to support client requirements. These requirements were:
    - ✓ Single Sign On (SSO) connectivity using the functionality in ArcObject
    - ✓ To retrieve appropriate layers from ArcCatalog

✓ To save data in an Oracle Database where any Layer Objects were saved into Blob Field

- Environment:
    - Source Control: SubVersion
    - Languages: VB/C#/Java/Javascript/ASP/HTML
    - MVC / Spring Framework / ACEGI Security Framework
    - Eclipse
    - Tomcat
    - WSDL/SOAP
    - Oracle
    - Win XP
    - ArcGIS

Project 17	
April 2004 to May 2004 (2 months)	
Health Canada: Streamlining Service Delivery Using E-Collaboration (SSDUE-II)	
Programmer/Analyst Consultant	
Project Value: > 50,000	
Team Size: >2 Team Members	

This project is a follow-on project to the SSDUE I Pathfinder project, which was a pilot demonstration of a common, standards-based, secure E-form enabled Drug Offence and Disposition Report that processes and shares information within the Integrated Justice cluster and with other partners. Based on the success of the pilot, SSDUE II was initiated with the first phase being the Business Process analysis. Health Canada tasked Fujitsu Consulting to complete the business analysis of the HC/SC 3515 Drug Offence and Disposition Process and to design a future process that leverages E-collaboration tools and technology.

Mr. Caron had these responsibilities:

- To maintain the Logical Data Model
- To develop a core component (beta version) in Java and .NET
- To load XML Data file and stream
- Environment:
    - Languages: Java/VB.NET/SQL
    - Oracle

Project 16	
January 2004 to March 2004 (3 months)	
Foreign Affairs: LESPAY SYSTEM	
Programmer/Analyst Consultant	
Project Value: > 100,000	
Team Size: >1 Team Members	

The objective of this project was to ensure the department could accurately calculate Canadian deductions for CAD LES, remit the correct amounts to Revenue Canada and produce T4s. In order to achieve these objectives, the use of LESPay for CAD LES by missions was mandatory. LESPay was developed to handle the pay for all LES at the mission. While the use of LESpay is optional for local LES, missions are encouraged to use this system for local as well as their CAD LES payroll.

Mr. Caron had these responsibilities:

- To develop an interface to convert Quattro Pro Spreadsheet to an Excel Spreadsheet using the old DDE

technology and Excel VBA modules
- Environment:
  - Languages: VBA
  - Quattro Pro/Excel

Project 15
May 2002 to December 2003 (20 months)
Canada Post Corporation (CPC): SCEM Release Project & Document Processing Unit (DPU)
Programmer/Analyst/System Analyst Consultant
Project Value: > $1 Million
Team Size: >5 Team Members

Canada Post revamped its tracking system from Mainframe IDMS technology to SAP's Event Manager (EM) product. As part of this redesign effort, Canada Post has mandated Fujitsu to update two key applications: the Delivery Installation Application (DIA) which provides key tracking inputs to EM and the Document Processing Unit application which enables the capture of signature for delivered mail items. These applications are distributed to over 500 CPC sites across Canada and serve as much as 45, 000 daily requests.

Mr. Caron was the Team Lead and had these responsibilities:
- To develop a proof of concepts to interface with a printer and a Kodak i50 Scanner for each workstation user.
- To identify and to understand how that hardware will be implemented using VB6 Technologies.
- To write documents for developers to support the hardware interface.
- To install and to configure drivers for Windows XP with their licenses.
- To maintain, to test and to administer all software components that interact with the hardware
- To maintain the environment in installing patches for drivers and Windows XP as well.
- To develop and to document a Software Distribution mechanism to update any applications with a server/client network management procedure anywhere in the country. It was based on a FTP Server reliability for synchronisation.
- To develop a COM+ Data Layer through ODBC Technology in connecting to an Oracle Lite Database Schema.
- To analyze the feasibility of another component to interface with the SAP's Event Manager (EM).
- To identify, to understand and to work with SAP consultants to develop a SOAP Interface between SAP and our product to simplify exchange of information using Web Services. He also wrote documents to help out developer to code the interface in VB6.
- Environment:
  - Source Control: GIT
  - Languages: VB/SQL
  - Win 2000/XP
  - Oracle Lite
  - EM SAP
  - FTP
  - COM+/ODBC
  - Scanner device

Project 14
February 2002 to May 2002 (4 months)
Canada Post Corporation (CPC): eOrder Project

Programmer/Analyst Consultant
Project Value: > $1 Million
Team Size: >10 Team Members
Mr. Caron came in the project to help out prototyping PDF transfer between applications. Mr. Caron had these responsibilities: • To build a prototype that enabled the transfer of PDF. This prototype was developed using the latest web service interface specifications.

• Environment:
    ○ Languages: VB
    ○ Win 2000
    ○ DCOM

Project 13
October 2001 to February 2002 (5 months)
Canada Post Corporation (CPC): Address Validation Project & eBusiness Reply Main (BRM)
Programmer/Analyst/System Analyst Consultant
Project Value: > 250,000
Team Size: >4 Team Members

Mr. Caron was involved with two internal initiatives to implement a web service over the Internet using Simple Object Access Protocol (SOAP) and Web Services Description Language Standard (WSDL). The first initiative involved the creation of a web service that enabled address validation and correction over the web. The second initiative involved a prototype that provides a web interface to a "clipper" based application. The Web Services allowed addresses to be validated in single or by batch mode; It also allowed other .NET applications to interact using ASP Pages, VB 6.0 programs or Java; COM+ to allow developers to access services programmatically. The services also allowed developers the possibility of choosing a local or remote service.
 	
Mr. Caron was the Team Leader and had these responsibilities:
 	
• To develop an architecture in VB.NET, C# and ASP.NET that enabled the following Address Validation services:
    ✓ NT Service using an Asynchronous Threading Model;
    ✓ MSMQ to validate address by a pooling queue;
    ✓ Web Service to allow customers or clients access through a browser interface

• To initiate this concept, Mr. Caron installed and configured Windows 2000, Windows XP machines, COM+ components and IIS Web Server
• To develop all aspects of this application from the ground up
• To configure a Broadband router (SMC Barricade) to secure the Web Server behind a firewall

• Environment:
    ○ Source Control: GIT
    ○ Languages: VB/C#/VB.NET/ASP.NET/SOAP
    ○ Win XP/2000
    ○ IIS/MSMQ

Project 12
July 2001 to September 2001 (3 months)
Canada Post Corporation (CPC): BCOFTP, BIZFTP, CDRS, and LABEL Project
Programmer/Analyst Consultant

Project Value: > 50,000
Team Size: >2 Team Members

This project is a Major Crown undertaking funded by Treasury Board of Canada. M. Caron explored new ways of implementing GIS functionality through open-source software.
 	
Mr. Caron had these responsibilities:
• To develop GIS functionality using open source
• To test for quality assurance
• To implement to the client
• Environment:
    ○ Source Control: SourceSafe
    ○ Languages: VB/SQL/PL-SQL
    ○ Oracle/MS Access

Project 11
June 2001 to July (2 months)
Canada Post Corporation (CPC): IMAIL Expansion Project
Programmer/Analyst/System Analyst Consultant
Project Value: > 50,000
Team Size: >2 Team Members

The enhancement involved the re-platform of the Clipper application to a Windows 2000 platform, centralizing one of the major databases and extending the application from 3 to 7 CPC exchange offices.
 	
Mr. Caron had these responsibilities:
• To architect to future CPC's IMAIL application according to client needs
• To test for quality assurance
• To develop major functional enhancement to CPC's IMAIL application using PDT 7500, Symbol (MCL-Designer MCL-Link Loader
• Environment:
    ○ Languages: VB
    ○ Win 98/2000/Symbol
    ○ PDT device

Project 10
March 2001 to June 2001 (4 months)
Canada Post Corporation (CPC): Address Improvement Project
Programmer/Analyst Consultant
Project Value: > 75,000
Team Size: >2 Team Members
Mr. Caron worked on the planning phase of CPC's Address Improvement Project He had these responsibilities: • Key resource for the design, development and implementation of a prototype demonstrating business processes supported by GIS and Oracle spatial technology • To develop the user interface using VB and interfaced with ESRI ArcObject Products • To test for quality assurance

- To install and to configure different products such as ArcSDE, Oracle Spatial, IIS and Microsoft InterDev. During that time, he had to coordinate with Oracle and ESRI technical resources to ensure the proper working of the prototype
- To build a Windows Network Infrastructure for the prototype
- Environment:
    - Languages: VB/SQL/PL-SQL
    - Oracle/MS Access
    - Win 98/2000

Project 9
February 2001 to March 2001 (2 months)
Canada Post Corporation (CPC): Track and Trace
Programmer/Analyst Consultant
Project Value: > 10,000
Team Size: >1 Team Members
This system replaced the Main Frame functionality in using Tuxedo Products to keep track and trace information on any items. Mr. Caron had these responsibilities: • To analyze the new Tuxedo functionality • To come up with a new design and approach • To develop a quick solution for replacing the system • To test for quality assurance • Environment: ○ Source Control: SourceSafe ○ Languages: VB ○ Win 2000 ○ Tuxedo Products

Project 8
May 2000 to February 2001 (10 months)
Canada Post Corporation (CPC): Decentralized Redirection System (DRS) Phases R1 and R2
Programmer/Analyst/Architect/Team Lead Consultant
Project Value: $1 Million
Team Size: 15 Team Members
DRS replaces the current SMART system, with a system installed at over 300 delivery offices providing a decentralized solution to the redirection of mail, and a consolidated central repository of change of address information for inquiries and reporting by various organizations within CPC. The new application was developed based on new technologies such as: ADO, ADO Disconnected Recordset, XML, ActiveX DLL, ActiveX EXE, ActiveX OCX and incorporates DCOM Threading Model; Mr. Caron had these responsibilities: • To redesign the old DRS Interim technology platform to a new reusable architecture model platform capable of: Running on Microsoft OS (95, 98, NT4, NT2K) without changing any code; Supporting English/French. It supported registry keys or INI files; Supporting Modem/DCOM Object to connect with the production server. It supported both databases (Access and Oracle) allowing the flexibility to support SQL Server

- To ensure the security for accessing the data and objects
- To automate upgrading it by using dynamic code like VBScript Engine
- In supporting the DMR Application Management Support group, to write documents and to develop several tools to support the application both internally and remotely
- To develop a user-friendly interface driver to efficiently handle a "SATO" printer replacing the Microsoft driver
- To develop ActiveX to receive data from a "One Handed Keyboard" through the serial port. Another ActiveX was developed to interface with an external database called "StreetPerfect SQL Anywhere" using the Toronto Sun API and yet another one was developed to interface with a Postbar API
- To add functionality to transfer files safely from a Web System called "ePost" to the production server
- To configure Windows NT 4.0 development machine and an Oracle database;
- To install and to manage Oracle database.
- To install OS and to configure machines like Compact Proliant
- To install and to configure IIS
- To manage hardware
- To prepare Development Environment
- Environment:
    o Source Control: SourceSafe
    o Languages: VB/ASP/SQL/PL-SQL
    o Win95/98/NT/2000
    o Oracle/MS Access
    o IIS

Project 7
November 1999 to May 2000 (6 months)
Canada Post Corporation (CPC): Customer Automation (CA)
Programmer/Analyst Consultant
Project Value: > 500,000
Team Size: >10 Team Members

The Customer Automation (CA) System is a replacement solution for the existing Customer Shipping Systems. It manages the shipment of parcels for commercial customers, and produces manifests, mailing labels, and Customs documents. It also calculates mailing fees and interfaces with several systems (e.g. for the invoicing).
 	
 Mr. Caron had these responsibilities:
 • To integrate requirements into the design of the CA system
 • To obtaining and to analyze business requirements
 • To maintain Business Process Requirements (BPR) documents
 • To develop functional specifications, and to obtain approval by the client
 • To receive and to analyse impact assessment of change requests
 • Environment:
     o Source Control: SourceSafe
     o Languages: VB
     o Oracle/MS Access
     o Win98

Project 6
August 1998 to October 1999 (13 months)

Canada Post Corporation (CPC): Retail Cash Management (RCM)
Programmer/Analyst/System Analyst/Architect/Team Lead Consultant
Project Value: > 500,000
Team Size: >10 Team Members
The Retail Cash Management (RCM) System is a replacement solution for the Financial Cash Receipts (FCR) system. It provides control over cash, bank deposits and inventory assets, and reports financial activity that occurs at corporate offices across the country.

Mr. Caron had these responsibilities:
- To architect the Manage Adjustment component, which included obtaining business requirements
- To develop the Conceptual Process Model
- To assist in developing the Conceptual Data Model
- To develop the Internal Design Standards
- Environment:
    - Source Control: SourceSafe
    - Languages: VB
    - Win 98

Project 5
(This year, Mr. Caron moved from Quebec City to Ottawa)
July 1998 to August 1998 (2 months)
Canada Post Corporation: Decentralized Redirection System (DRS) Interim
Programmer/Analyst/Architect/Team Lead Consultant
Project Value: 75,000
Team Size: >5 Team Members
Mr. Caron worked as an Application Architect on the Decentralized Redirection System (DRS) for CPC. DRS replaces the current SMART system, with a system installed at over 300 delivery offices providing a decentralized solution to the redirection of mail, and a consolidated central repository of change of address information for inquiries and reporting by various organizations within CPC.

Mr. Caron had these responsibilities:
- To write any documents to provide the solution to the client
- Act to DBA to maintain DRS Access database
- Environment:
    - Source Control: SourceSafe
    - Languages: VB/PL-SQL
    - MS Access/Oracle
    - Win 95

Project 4
September 1997 to July 1998 (10 months)
Société de Développement Industriel: CDSO (DMR Oracle Solution Center)
Programmer/Analyst DMR Consultant
Project Value: > 500,000
Team Size: 5 Team Members
Mr. Caron worked on the system management subsystem for the Société de Développement Industriel. This

subsystem, reusable in other DMR projects, was built to be implemented as a package element.

Mr. Caron had these responsibilities:
- To analyst client needs
- To design and to develop most components of the subsystem
- Mr. Caron had trained to Oracle 7.3, Designer/2000, Developer/2000, PL/SQL and SQL*Plus intensively to assist the client in preliminary design of the system
- Environment:
    - Languages: PL-SQL
    - Oracle
    - Win 95/2000

Project 3	
January 1996 to July 1997 (19 months)	
Assurance-vie Desjardins Laurentienne (AVDL): The New Partner and FundServ System	
Programmer/Analyst/Architect/Team Lead Employee	
Project Value: > $1 Million	
Team Size: >10 Team Members	

"New Partner": With the merging of Desjardins and Laurentienne-Vie, the new illustrations represent a collection of insurance products used by the sales team. Issued from a DOS environment, these products will be migrated in a graphical environment (GUI) using new concepts. For the "New Partner", a new technological architecture for business insurance systems. This system will allow the company to attain more competitive assets in the market.

"FundServ System": Mr. Caron implemented the "FundServ System" in collaboration with the technical team company. This system integrates information from different funding companies and makes a daily distribution of the information to representatives VIA telecommunication. Such operation allows represents to receive an update on their clients' investments.

Mr. Caron had these responsibilities:
- Along with other technical designers, Mr. Caron assisted in defining the technical architecture, which would support the product development and deployment on object servers;
- Mr. Caron completed preliminary research to conduct studies of new software
- To modify telecom software to facilitate communication between server and portable
- To automate several installation procedures
- To prepare CD-ROMs for deployment
- He wrote documentations for developers training to increase their knowledge in Windows 95
- With the knowledge acquired, he became the team leader of six developers
- To design Desktop User Interface, first one in Windows 95
- To work with actuaries peoples to understand their math
- To work with Graphic Artists to get the best experience for Desktop Interface
- As DBA, he designed and created databases
- To maintain all systems over time
- To develop tools data to process, to prepare data for telecommunication; and finally to import data into database software
- Environment:
    - Languages: C/Assembler/VB
    - DOS/Win95

Project 2
May 1990 to December 1995 (67 months)
Laurentienne Vie: Wide Variety of Financial and Insurance Products Projects
Programmer Employee
All Projects Value: > $2 Million
Team Size: >10 Team Members
Mr. Caron was responsible for developing a wide range of financial and insurance systems for Laurentienne Vie and their clients.
Mr. Caron had been nominated employee per excellence every year for its dedicated work to get any projects, whatever he worked on, to be successful on budget and on time.

At that time, he was involved in the first method to develop fast system called 'RAD Development and a single independent team' composed of Business Analysts, System Analysts, Creative and Fast Developers. It helped to decrease time development by months in going directly from an idea to cycle through rapidly to a product ready for market.
 	
 Mr. Caron had these responsibilities:
 • To design Desktop User Interface, first one in DOS Graphic Mode
 • To work with actuaries peoples to understand their math
 • To work with Graphic Artists to get the best experience for Desktop Interface
 • Mr. Caron used to be a second level helpdesk support technician
 • As DBA, he designed and created databases
 • At this time, Mr. Caron did a lot of assembler and C to speed up systems since the machines were not geared up to process so much calculations
 • Environment:
    o Languages: C/Assembler/VB
    o DOS/Win 3.1

Project 1
January 1989 to May 1990 (17 months)
Siège Régional Gouvernement Urgence (SRGU): Nuclear Detonation (NUDET)
Programmer/Analyst Consultant
Project Value: > 200,000
Team Size: 1 Team Members
The Nuclear Impact Detection System and the Evaluation of Damage and Victims System were required by the SRGU (Emergency Government Regional Office) to support basic operation in case of nuclear war, or other civil situations requiring an evaluation of damage and victims.
The system was presented to the General Quarter of Ottawa, the Military Base of St-Hubert and the Civil Protection of Quebec.   Mr. Caron had these responsibilities: • To aggregate all needs from scientists at the defense research establishment located at Valcartier and to write documents according to the Macroscope   • To design and to develop a system able to detect, to calculate impacts, to predict explosions target   • To product reports for the Public Safety Canada   • Environment: o Languages: C/Assembler

- Dbase/Clipper
- DOS

TECHNOLOGIES

Databases:	PostgreSQL (PostGIS), SQL Server, Oracle 9 to 12c, Oracle Lite , MySQL, MS Access, StreetPerfect , Dbase, Clipper
Web Servers:	IIS, WebLogic, Oracle Application Server, Tomcat, Apache, ToMEE
GIS:	ESRI Product, ESRI Online, ArcObject, OpenStreetMap
Source Management:	SubVersion, Maven, JIRA, TFS, SourceSafe, Wiki, BugZilla, Tortoise, Git Server
Protocol:	SOAP, WMC, WMS, WFS, WPS, AJAX
JAVA Open Source	ESRI Portal, STS SpringSource, JTS Topology Suite, Hibernate, GeoTools, ACEGI Security Framework, Hibernate, AXIS1-2, XERCES, XALAN, JAXB, JAX-WS, JAXP, WSDL, SIAP, SAAJ, Open EJB, Struts
JavaScript Libraries	JQuery, DOJO, OpenLayers, Google API, ExtJS, ESRI API, GeoJSON, Apache CFX Javascript, React Javascript Library, TouchStoneJS Javascript Library
Tuning and Unit Testing:	JVisual VM, JMeter, SysInternals Tools, Windows Resource Monitor, MS WebTest
Software Management:	SCCM, TIVOLI, MSI, MST, AppV 5, Admin Studio
LDAP:	Apache Directory Server, JXplorer
Handheld & Barcode Reader:	PDT 7500, Symbol (MCL-Designer MCL-Link Loader), Wasp BarCode, LeadTools 13
Software:	XMLSpy, ESRI Products, .NET Studio, Eclipse, STS, VB6, Oracle 7.3, Designer/Developper, Crystal Report, SQL Expert, Stylus Studio, ArcMap, ArcCatalog, ArcSDE, ArcGIS, CoolCat, PeopleSoft 9.1
Virtualization:	Amazon, VM Ware, HyperV, Citrix
Operating Systems:	DOS (all), Windows and Windows Server (all), Mac, Red Hat, CentOS
Languages:	assembler 8086/80286, C, C++, Cobol, Pascal, VB, VBA, Java, JavaScript, HTML, HTML5, CSS, XML, XSTL, XSD, WSDL, GML, PL/SQL, C#, VB.NET, ASP.NET, JSP, JSF, JSON, Python, PeopleSoft Code
Office Automation:	MS Office Suite, WordPerfect Suite, Lotus Smart Suite, Lotus Notes.