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|  | **John Ledger** |

career summary

Mr. John Ledger is a certified (TOGAF 9) architect and has been in the technical architecture, software design and development space for more than 20 years, with experience in the private sector, and with the Canadian government and contracted agencies:

* Spirit of Math Schools
* Department of National Defence
* General Dynamics
* Fujitsu Consulting
* Communication and Security Establishment Canada (CSEC)
* Canadian Boarder Services Agency (CBSA)
* Secure Applications and Key Management Systems (SAKMS at PWGSC)
* Royal Canadian Mounted Police (RCMP)
* Citizenship and Immigration Canada (CIC)
* Financial Tracking and Reports Analysis Centre (FINTRAC)

Recently, Mr. Ledger’s interests have included data analytics, and has recently completed programs from Microsoft and Georgia Tech, including courses in R, Python, AzureML, and Azure Spark Server (through edx.org).

Mr. Ledger’s technical experiences include designing and writing systems with Java and other open-source tools. He also has experience with analysis and documentation of requirements to identify information and decision flows; Defining and documentation of all impacts within subsystem and to other external systems; and design and documentation of requirement changes (components, interfaces and operations).

areas of expertise

* Process Modeling
* Data Modeling
* Web systems architecture
* System Analysis/ Design
* Development in Java, Python, PHP, Golang
* Data Migration

SECURITY CLEARANCE

Secret (pending)

EDUCATION

Harvard/edx.org

* Data Science: Machine Learning (PH125.8x) (in R) 2019
* Data Science: Linear Regression (PH125.7x) (in R) 2018
* Data Science: Data Wrangling (PH125.6x) (in R) 2018
* Data Science – productivity tools (Linux) 2018
* Data Science - Inference and Modelling (in R) 2018
* Data Science: Visualization (in R) 2018
* Data Science: R Basics (in R) 2018
* Data Science: Probability (in R) 2018

Microsoft/edx.org

* Essential Statistics for Data Analysis using Excel (DAT 222x) 2018
* Professional Capstone: Data Science (Azure Machine Learning) (2018)
* Implementing Predictive Analytics with Spark in Azure HDInsight (2018)
* Programming for R in Data Science (2018)
* Essential Statistics for Data Analysis using Excel (2017)
* Analyzing and Visualizing Data with Power BI (2017)
* Principles of Machine Learning (R and Python) (2018)
* Data Science Essentials (2018)
* Introduction to R for Data Science (2018)

Georgia Tech/edx.org

* Georgia Tech/edx.org – FA18: Computing for Data Analysis (CSE6040x) (Python) 2018

IBM/edx.org

* Introduction to Containers, Kubernetes and OpenShift – in process

Other

* ITIL Foundations Dec 2014
* TOGAF 9 Certification April 2012
* Unix Administration 1996 (approx.)
* BA, University of Western Ontario, London, 1989

IT SKILL SETS

Hardware and Operating Systems

* Linux Alpine
* CentOS 7
* Redhat Linux 5
* VMWare player 3.1.4
* Windows 7 / 8 / 10 / 11
* Sun Solaris
* Docker

Programming

* Java, up to 18
* JavaScript (Angular, jquery, Ajax)
* Python
* PHP
* Golang
* C# / .net
* Spark (with Java)

Database

* MySQL
* SQL Server 2008R2
* Oracle 8 – 11, PL/SQL
* IBM DB2
* MongoDB

Web and Application Servers

* Apache web server
* Apache Tomcat server 6 – 8.x
* IBM WebSphere (WSAD) 5.1 Server

**Programming Tools**

* Eclipse with Springsource Tool Suite
* JUnit, Spring, Springboot
* HTML/CSS
* JavaScript, including ajax, jquery, Angular
* Unix Shell Scripting
* Atlassian tools (Bamboo, Jira, Confluence, Bitbucket/git)

**Software and Design Tools**

* Jenkins automation server
* Sparx Enterprise Architect
* Atlassian tool suite, including Jira, Crucible, Confluence and Bamboo
* Maven
* Rational Software Architect (RSA)
* Rational Application Developer (RAD)
* ClearQuest
* MagicDraw
* OptimizeIt! 4.0
* Rational Rose
* Apache Quartz

PROFESSIONAL Experience

**Spirit of Math Schools** March 2020-January 2022

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| Nº 9 | Software Architect |  |
|  | Product Owner / IT Department developer |  |
| Spirit of Math Schools | Spirit of Math Schools is an after-school program for children in grades 1 through 12. The school has 12,000 students in various campuses across Canada  Duties included:   * Design and writing performance testing tools for the in-house registration portal (Java 1.8, Selenium 3.11) * Design and build an in-house ecommerce registration system (JavaScript, MS Dynamics 365 Portal, Bambora payment systems) * Designed and managed the build of an online math drill application (Java, MongoDB, Azure cloud, OpenAPI (RESTful), Angular front end, VS Code for JavaScript * Wrote algorithm to generate fair questions for the math drills (Java 1.8, Eclipse), including all unit tests * Software evaluation of other online school registration programs * Participated in an Agile development environment   Environment:  Java, Springboot, Selenium 3.11, Eclipse 4.8, MongoDB, Azure Cloud, JavaScript, Angular, OpenAPI (Swagger), Postman | |

**Department of National Defense** Sept 2019-March 2020

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| Nº 8 | Software Architect |  |
|  | Oracle Backbone Team (disbanded) |  |
| DND | The objective of our team was to create a centralized framework to connect all DND data and make it available to all authorized personnel. We used Drupal for the CMS (content management system), Swagger to document and expose APIs, and Oracle backbone tools to transfer data.  Duties included:   * Wrote a search feature in PHP to find instances of content stored in the Drupal MySQL database   Environment:  Oracle ERP, OpenAPI (Swagger), Drupal, PHP, LAMP, Postman | |

**Innovapost** Sept 2018-August 2019

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| Nº 7 | Software Architect |  |
|  | EDB – Enterprise Data Broker |  |
| Canada Post Corporation | The EDB is a middleware component central to Canada Posts routing infrastructure, and represents the ETL (Extract – Transform – Load) functions necessary for CPC’s customers.  The EDB middleware routes data to 1,000’s of remote clients servers through the use of internal ‘interfaces’, that store routing detail information. These interfaces are scheduled through a proprietary job interface language (JIL).  This system was designed and implemented with multiple databases (Oracle and MySQL) and environments (production, staging and development). EDB data also consisted of various spreadsheets  The EDB middleware lacks the ability to pull data from its systems in a meaningful format that could be used by tiered support workers. Much of the data needed for troubleshooting is found in spreadsheets, and is not well maintained, nor accessible by all support workers.  My responsibilities were to build a system that could tie all the disparate data sources together, and expose them through various web services, and other user interfaces including GUI’s and CLI’s. My work included:   * data conversion from spreadsheet to database * organise and execute a data cleansing exercise. * convert spreadsheet data to a database, * write web services to expose a combined data picture * write GUI’s to update and view corporate support data * Update corporate website with latest system designs   In the process of building this system, several open source development tools were evaluated.  Personnel in the EDB group includes mostly java developers, along with some management.  The EDB group follow Agile software development methods, including daily stand-ups and 3 week sprints with demonstrations and retrospections.  Duties included:   * Requirements gathering with the EDB and group and other groups that would be using the new EDB portal. * Authoring design documents * Design and implementation of data conversion, including unit testing * Design and implementation of EDB inventory portal. * Code and document reviews * Also created a test portal for users to test new interfaces.   Environment:  Java JDK 1.8, MariaDB (MySQL), Jenkins, Spring, Springboot, Angular 7.x, Thyme leaf, Hibernate, Spring Security, Maven, Atlassian Crucible (for code reviews) | |
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**General Dynamics** July 2016 – Sept 2018

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| Nº 6 | Software Architect | |  |
|  | DMI Adapter | |  |
| Department of National Defence | The Canadian military was in need of a tactical mapping and planning tool, and adopted the USA military’s custom systems. This custom system required that data feeding into it be in a specific format, which was not the case for other Canadian military databases.  The DMI Adapter was then conceived to bring together data from multiple disparate sources into a common format for these new planning tools.  The delivered DMI Adapter has the ability to manage all aspects of the data transformation, including receiving new source data on-demand, on-schedule and on-notification. Transformations could also be customized by the end user to include / exclude specific data values, over specific geographic areas with the aid of a mapping system (i.e. analogous to drawing a box in Google maps).  This system was designed and implemented with multi-node SOA (service-oriented-architecture) application servers, failover Enterprise Service Bus (ESB), clustered Extract-Transform-Load (ETL) servers, and offsite database failover to ensure system uptime is maximised.  Data from multiple source systems can be extracted, transformed and loaded asynchronously. The DMI Adapter was also self-profiling, and notified appropriate personnel of any performance and heartbeat irregularities, whether on the SOA nodes, database, source systems, or destination system.  The DMI Adapter included a GUI where system parameters could be modified, and adjustments to transformation rules could be made on-the-fly.  This project consisted of a peak 22 personnel, over 4 years. Personnel included java developers, deployment and test engineers, quality assurance specialists, system and technical architects, project management, database designers and administrators, and documentation specialists.  Followed Agile software development methods, including daily stand-ups and 2-week sprints with demonstrations and retrospections, and sprint planning of backlog items  Duties included:   * Design and implementation of Enterprise Service Bus, profiling software components, logging, software modules, database design, unit testing, and deployment strategies. * Maintenance of existing design documents, and authoring new design documents. * Implementation and documentation of the installation process, including a mirrored site * Contributed to implementing and using Atlassian Bamboo CI/CD server * Code and document reviews * Defining coding standards * Adhering to Department of Defence Architecture Framework (DODAF). * Writing Change Requests | | |
|  | Environment: | Java JDK 1.7, ActiveMQ, Kafka, Hibernate, Maven, SOAP, SmartGWT, SmartBear, Apache Tomcat8, Clover ETL, Spring 4, Windows 10, Quartz Scheduler, SQL Server 2008r2, Apache HTTPD, GIT, and the Atlassian Agile tool suite including Jira, Confluence, Crucible (for code reviews) and BitBucket (git code repository), Postman. | |

**Fujitsu Consulting** February 2011 – July 2016

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| Nº 5 | Software Architect | |  |
|  | Common CV (CCV) Renewal | |  |
| Canadian Institutes of Health Research (CIHR) | Fujitsu was contracted by CIHR to build a CV system to match Canadian academic researchers with Canadian funding sources.  Fujitsu built a bilingual Java based system with a MySQL database to support a web GUI application, accessible for all Canadians interested in applying for academic funding. The system supports any number of researchers and funding sources, customizes a researchers CV for each funding source, routes CV’s to funding sources, and supports funding competition deadlines. CV’s can also be imported and exported from/to other systems, and can import data from academic publishing sites using a standardized XML format.  At time of writing, there were over 170,000 registered users and about 19 Member Agencies. Upwards of 6,000 individuals access the CCV on a daily basis.  Duties include software development, architecture, database design and administration, and business analysis.   * Design using RESTful web services; * Developed a metadata-driven framework where the system allows for dynamic updates of database schema; * Created and maintained a Java Coding Standards document for the CIHR project * Developed optimization strategies for fast retrieval of client data * Conformed to GUI Web Standards for the Government of Canada (GCWU) * Knowledge transfer to other developers including training on maven, tomcat and apache servers, java design principles and best practices. * Designed and executed testing strategies to gather performance statistics for given hardware and server software selections. With this information we were able to ensure we could meet prescribed standards, and identify bottlenecks where performance improvements could be made. * Performed lessons learned with other developers and client after each release * System is distributed over multiple application, web and database servers * Apply Macroscope ProductivityCentre methodology to design, develop and document system specifications based on user defined functional and non-functional requirements; * Performed code reviews with other Fujitsu employees * Coding and implementation in Java with Spring in Eclipse, MySql (including SQL), Hibernate, SVN (Subversion, for source code management), Apache Tomcat, QueryDSL JPA, Bugzilla; * Tracked enterprise architecture using ArchiMate Tool 3.1 * Build and deployment of web applications using n-tier design; * Lead the design (using UML) and development of the administration and validation portion of the application; * Code the output of CV data for users; and   Convert data from Oracle 10g to MySql.   * Support high availability (systems were available 24/7 for 6,000+ users online simultaneously, 158,000 users in total); downtimes of < ½ hour (for maintenance releases every 3 – 4 months). Users average 133+ transactions per session (800,000+ transactions / day)   Wrote and managed online help  Wrote JUnit tests  Worked concurrently on other in-house Java projects, specifically TRBP from January 2012 on | | |
|  | Environment: | Java JDK 1.6, JSP, JavaScript, jQuery, HTML, STS (SpringSource Tool Suite), Spring 3, Maven, Spring Security 3.1, Spring Tiles, Struts, FOP/XLS, Spring Data, Apache Struts2, AngularJS, Quartz, JMeter, Hibernate 3.5, Spring WS, Captcha, XML, XSLT, SVN (Sub Version), BugZilla, Red Hat 5.2, VM Ware, MySQL 5.5, Oracle 11g, MySQL Workbench, MS SQL 2008, Apache server 2.2, Tomcat 6, ArchiMate Tool 3.1, Macroscope, Jira, QueryDSL JPA, Eclipse code reviews, Jenkins (build tool) | |

**Communications Security Establishment Canada (CSEC)** Oct 2007 – Feb 2011

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| Nº 4 | Java Developer / Designer  (Application Architect) | | 3 years, 5 months |
|  | Integrated Systems Architecture (ISA) | | Oct 2007 –Feb 2011 |
|  | This project involved the design and development, and the documenting of detail design specifications of a GIS-enabled Eclipse application. This included writing java web services for exchange of data with partner agencies, implementing and configuring ESRI’s Web Mapping Server, and using it to retrieve data in a browser within an Eclipse application. Worked with developers from member-agencies across Canada, United States and other allied countries.   * Designed and developed Eclipse Rich Client Plugins (RCP) in Java, using Eclipse 3.3.1.1, 3.4.1.1, and 3.5.1 Java 1.4, 1.5, 1.6; * Developed a GIS framework to fit in with existing systems; * Documented the architecture of the system, including all its communications with other systems; * Designed Management reports through many JAD sessions; * Led the development of a GIS system as a plugin for Eclipse; * Worked on design using UML with Rational Software Architect (RSA) * Knowledge transfer to junior developers * Used ClearCase, Subversion and Synergy configuration management tools * Used ClearQuest and JIRA task (defect) management tools; * Designed and implemented web services (WSDL’s), using RAD, and Apache CXF; * Created JUnit test cases; * Wrote PL/SQL and connected to an Oracle RDBMS; * Responsible for load testing and optimization of multi-threaded connection pools; * Deployed web applications to IBM WebSphere application servers; * Presented software to users and management; * Followed the CSEC Corporate Systems lifecycle which included multiple testing environments and quality assurance, completion and updating of design documentation, and release management; * Set up and configured ESRI’s ArcWMS (map) server; * Implemented ILogs’ JDiagrammer, JViews, and JMaps products to access map data from the ESRI Web Mapping Service (WMS); * Used Hibernate and HQL to define interface between Java and Oracle and Sybase databases; * Worked with clients to determine a workflow process; * Worked on requirements gathering through user JAD sessions; * Worked on Workflow Requirements Analysis and documentation using Business Process Modeling Notation (BPMN); * Used Code Collaborator for formal code reviews   Followed the CSEC Corporate Systems lifecycle, which included multiple testing environments and quality assurance, completion and updating of design documentation, and release management.  Maintained operational procedures through the use of a local wiki | | |
|  | Environment: | Oracle 8 – 10g, IBM WebSphere, Hibernate, HQL, Windows XP, Sun Solaris, linux Redhat, PL/SQL, Apache Lucene, IBM MQ Series, RAD, SOAP, Apache CXF, JUnit, Subversion, ClearQuest, Rational Software Architect, MagicDraw, Eclipse 3.x, Java 1.x, BEA Weblogic, Code Collaborator (for code reviews) | |

**Canada Border Services Agency (CBSA)** Jul 2003 – Jun 2007

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| Nº 3 | Senior Systems Analyst  (Application Architect) | | 4 years |
|  | Passenger Airline Information System (Paxis) | |  |
|  | The PAXIS system is comprised of a data acquisition solution (receiving passenger information from airlines) and a passenger analysis function. PAXIS receives messages provided by the airlines and retrieves the PNR or reservation and departure information from the airlines systems (Airline Reservation System and Departure Control System).  Passenger information is transmitted to the CBSA immediately following the departure of the aircraft for Canada. Once this information is transmitted to the CBSA, this triggers the system to robotically go into the carrier’s reservation system to pull the PNR information on each passenger destined for Canada.  PAXIS performs automatic Integrated Customs Enforcement System (ICES) and Field Operations Support System (FOSS) queries for all passenger/crew records and displays summary information on exact and possible matches. Automated analysis of API/PNR data through PAXIS is accessed by designated targeters and regional intelligence officers to assess the level of risk posed by international air travellers prior to their arrival in Canada. All activity is audited to allow for the monitoring of system and information access.   * Designed and developed n-tier back-end processing classes in Java/XML using Eclipse * Led the design (using UML) and development of a data transfer application with partnered agencies through full lifecycle including testing, QA, documentation, release, training and maintenance; * Conformed to the CLF web standards * Documented architecture of system and its communications with outside systems; * Followed the CBSA lifecycle which included multiple testing environments and quality assurance, completion and updating of design documentation, and release management; * Lead the design and build of a business rules management solution implementing open source software (Mandarax) using Eclipse, along with cost analysis; * Wrote SQL scripts and embedded SQL for the IBM DB2 and SQL Server databases; * Used the RUP development methodology; * Used IBM’s MQ message bus * Worked with international partnered agencies; * Built front end user interfaces using latest JSP standards incorporating XML and XSLT technologies, HTML, Servlets, and JavaScript * Responsible for performance tuning and profiling using Wily portal manager for WebSphere, OptimizeIt! 4.0 and NetBeans 5.2 to identify and improve memory and CPU usage; * Carried out maintenance of Unix Shell Scripts used to run daemon tasks; * Systems were multi-threaded and ran within a daemon task to support high availability (systems were available 24/7 for 300+ users); and   Cross-trained junior developers (knowledge transfer), and performed lessons learned on a regular basis as appropriate.  Maintained operational procedures through the use of a local wiki | | |
|  | Environment: | JUnit, WebSphere, OptimizeIt! 4.0, NetBeans 5.2, HTML/Servlets & JSP, JavaScript, Java/XML, Unix Shell Script, WinCVS, IBM DB2, IBM’s DB2, Eclipse 2.1.1, IBM WebSphere (WSAD) 5.1, Unix Shell Scripts, Windows 2000, IBM MQ Series, SQL Server | |

**Public Works and Government Services (PWGSC)** Mar 2003 – June 2003

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| Nº 2 | Senior Java Developer – Government to Government Online (G2GOL) | | 4 months |
|  | Secure Applications and Key Management Services (SAKMS) | |  |
|  | SAKMS is a division of PWGSC responsible for the distribution and management of encryption certificates. The G2GOL project is an attempt to secure all web traffic from Government of Canada employees to Government of Canada online applications. The application is bilingual, and distributed over a dozen servers, and will handle 1,000’s of transactions per minute.   * Designed and developed n-tier back-end processing classes in Java/XML using IBM WebSphere (WSAD) 5.0 and 4.03; * Led the design (using UML) and development of the administration portion of a G2GOL application and implemented the application from concept through execution, testing, QA and documentation; * Product serviced all government employees (1,000’s of users) to Pension and Payroll systems, and was made available 24/7; * Development was done with IBM WebSphere 5.1 (Eclipse framework); * Project included COM components (C++), which where integrated with the Java components; * Worked on object modeling using UML (Rational Rose); * Designed and developed front end components using Jakarta Java Struts 1.1; * Integrated code with the Entrust Java Toolkit; * Worked on Configuration Management using CVS; * Designed and developed middle-tier processing classes in Java/XML; * Worked on component design using Rational Rose (UML and RUP); * Wrote SQL to communicate with an Oracle database; * Developed Dynamic HTML front end to be CLS compliant;   Wrote Unix Shell Script to deploy code to various test and production servers | | |
|  | Environment: | Unix Shell Script, Applets, HTML/ Servlets & JSP, HTML, SQL, Rational Rose (UML and RUP), Java/XML, CVS, Jakarta Java Struts 1.1, Rational Rose, J2EE, IBM WebSphere 5.1 (Eclipse framework), WSAD, Windows XP Pro, Solaris, IBM Websphere Application Server | |

**FINTRAC – Ministry of Finance** Jul 2001 – Mar 2003

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| Nº 1 | Senior Java Developer and Designer – Data Capture | | 1 year, 9 months |
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|  | Fintrac is an agency for the Ministry of Finance responsible for collecting data from financial institutions about suspected laundered money and Terrorist Financing. The team was responsible for capturing and storing this data from web forms, paper reports, a stand-alone application, and batch submissions. Fintrac has been responsible for collecting close to $100 million in laundered monies, which have been put back into public funds.   * Designed and developed n-tier back-end processing classes in Java/XML using Oracle JDeveloper (JBuilder) 3.2.3; * Led the design (using UML) and development of a Java/XML data transfer application with partnered banks through full lifecycle including testing, QA, documentation, release, and maintenance; * Worked with the SWIFT file format * Documented architecture of system and its communications with outside systems; * Created/ran custom reports on-demand; * Used Borland OptimizeIt! for Java performance tuning, including CPU usage and memory usage; * Designed, documented and developed front end JSP’s; * Worked on object modeling using UML, including Rational Rose and open source design applications; * Used the JUnit testing Framework; * Followed internal development process that included requirements gathering, functional analysis, system and component design; * Used Rational Rose for design work; * Mentored junior developers during entire software lifecycle; * Assisted in database design; * Responsible for Configuration Management using Oracle Repository; * Designed and developed middle-tier processing classes in Java/XML; * Wrote SQL to communicate with an Oracle 8i database; * Developed Dynamic HTML front end using Applets, JSP, Servlets   Wrote Unix Shell Scripts to move client data files; | | |
|  | Environment: | Unix Shell Scripts, JSP, Servlets, Java/XML, SQL, ColdFusion, Dynamic HTML, Borland OptimizeIt!, Rational Rose, JUnit, Oracle JDeveloper (JBuilder) 3.2.3, Windows 2000, HP-UX | |