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Data Analytics Engineering Director/Associate Professor – George Mason University, Data Analytics Engineering, Solutions Architect, and Cloud Migration/Development

PROFESSIONAL EXPERIENCE

GEORGE MASON UNIVERSITY

9/2018 TO PRESENT

Data Analytics Engineering Director/Associate Professor

- This position is within Volgenau school of engineering at George Mason University. Responsible for the administration of a 600 student plus Master of Science and certificate program in data analytics. The program consists of both on-campus and online offerings of the MS degree and certificate. Other responsibilities of teaching graduate level courses in data analytics/machine learning/data mining, cloud engineering, team based data analytics engineering projects, data analytics workbench, object-oriented construction, Python programming, and core Java development and Java programming.

MARKON SOLUTIONS

Data Analytics and Cloud Architect

11/2020 to Present

- Armatus Solutions was acquired by Markon Solutions. Current work involves front-end application integrating AWS SageMaker and supporting several data science initiatives focused on optimization tools, data repository integration, data labeling service, tool metrics, and data governance.

ARMATUS SOLUTIONS

6/2017 TO 11/2020

DATA ANALYTICS AND CLOUD ARCHITECT

- Volant Associates was split into two companies: Volant associates and Armatus Solutions. My former Volant Associates NRO contract was transferred to Armatus Solutions. Work described in my Volant Associates work description below is the same.

VOLANT ASSOCIATES

7/2016 TO 6/2017

DATA ANALYTICS AND CLOUD ARCHITECT

- Currently supporting an NRO acquisition of a multi-tenant C2S based framework that will enable the agency to consolidate and host several categories of data analytic applications. The framework will enhance data sharing and provide a common set of data analytic services for sharing across hosted applications, therefore supporting a data repository and

catalog for data centric applications. The activity has placed special emphasis on cloud resource management, cloud operational costs, DevOps, polyglot data storage, and application service availability.

ORACLE NATIONAL SECURITY GROUP CONSULTING

10/2007 TO 7/2016

Technical Director/ Analytics and Cloud Engineer

- Currently supporting cloud development for services deployed to the Amazon Web Services (AWS) cloud. This work involves the development and deployment of four services: a) geospatial metadata validation service for NMIS 2.2; b) geospatial ordering service; c) policy enforcement point service (PEP) for providing protected resources; and d) federated search broker based on the Content Discovery Retrieval (CDR) standard. I able to successfully obtain two authority to operate (ATO) certifications for the NMIS and PEP products.
- Assessed content, discovery, and retrieval broker for inter-agency federated searching for an Intelligence Community customer. Prototyped the broker in a development environment using a supplied SDK for wrapping existing agency source to participate in federated searches. Team member of joint technical team consisting of agency chief technical architects, contractor chief architects and FFRDC technical architects that investigated and developed an enterprise search and discover service that will be presented to agency level senior staff.
- Developed Oracle Endeca/Liferay portal system application for an Intelligence Community customer. This prototype was developed and presented to agency senior level decision makers as a proposed technical solution for mitigating current consequential pains that they were experiencing in supporting their business mission for the agency.
- Performed requirements analysis, developed architecture, and developed design for a PL3 document sharing system for the Joint Warfare Analysis Center (JWAC). This system was based on multiple data feeds being index by an Endeca based subsystem for sharing selected documents across enclaves. Assisted the JWAC client through preliminary design review and critical design review. In addition, assisted the JWAC client in selecting and costing all hardware and software components for the system.
- Participated in the development of a key component in the Oracle Cross Domain Security Database, data assurance service, which performed an number of data quality checks and assurances on data prior to being ingested into the database. This implementation was based on a java design that utilized a combination of Oracle Database services and Java developed services. The implementation was deployed on a Oracle Web Logic Server that was clustered for high availability and high reliability. This component has been packaged as a reusable asset and is available for purchase by Intelligence Agency clients.
- Supporting consulting engagements Oracle NSG Cross Domain Security Database reusable asset. This solution leverages Oracle's enterprise database (11G R2) with Oracle Database Vault, and Oracle Label Security along with additional security components that are certified and accredited as DCID 6/3 Protection Level 4 system. This work resulted in leveraging and integrating a number of Oracle products such as Oracle Business Intelligence (i.e., audit reduction and forensic analyses), Oracle PeopleSoft HCM, and Oracle Web Center Content and Portal.

- Supporting Oracle Consulting Military Healthcare Practice. The focus of this position was to provide technical solutions to Oracle Military Healthcare customers.
- Developed a Military Healthcare System (MHS) enterprise architecture, this was based on a centralized approach, using blade servers (i.e., Egenera), storage area network (SAN – EMC CX-500), virtualization software (i.e., VMWare), and designing a complete remote management system for O&M activities. System was deployed to over 100 military treatment facilities.
- These architecture solutions were modeled (UML) as enterprise solutions with respect to business architectures, service-oriented architectures, and component-based architectures. These architecture solutions utilized Oracle core and application technologies such as Oracle10G database, RAC, Oracle Application Server, Oracle Healthcare Transaction Base (HTB), BPEL Process Manager, and utilized open standards such as J2EE, Web Services, etc.
- For the Military Healthcare System (MHS) enterprise architecture, this was based on a centralized approach, using blade servers (i.e., Egenera), storage area network (SAN – EMC CX-500), virtualization software (i.e., VMWare GSX), and designing a complete remote management system that enabled access for the maintenance team based on the Xceedium SSL + UAG (universal access gateway). I was responsible for virtualizing and consolidating four MHS legacy applications on a single Egenera pServer. This work has eliminated four individual servers for the legacy applications and centralized operational support, therefore lowering the customer's total cost of ownership and enhance service level agreements. Oracle Grid Control Agents are utilized for monitoring system health.

Adjunct Professor

- This position is within the computer science department at George Mason University and consists of teaching classes in software engineering, web development, and object-oriented construction. My teaching for the last ten years of my adjunct position was at the graduate level based on teaching courses on object-oriented construction specifically focused in the areas of abstraction in the context of core Java development and Java programming and data management and mining.
 - CS 504 – Principles of Data Management and Data Mining
 - SWE 510 – Object-Oriented Programming in Java
 - SWE 432 – Web Application Development
 - SWE 610 – Object-Oriented Software Specification and Construction

Technical Director/Enterprise Architect

- Supported the DoD Worldwide – TRICARE Information Center (W-TIC) Project. The DoD W-TIC system was designed as a three-tier distributed architecture and was modeled in UML. Managed a team of over 60 technical staff. The scope of this position involved making key decisions on technology insertion, developing and implementing system architecture, responsible for all system integration and modifications, monitoring of operational system, security architecture, and coordinating across all major technical functional areas: COTS product integration, networking, telecommunications, databases, servers, desktops, and security. The DoD W-TIC application was based on an Oracle E-Business Suite (CRM and Call Center Modules) implementation based on an Oracle8i database and Oracle9iAS middle tier supporting a multi-channel contact center. Channels supported: Oracle telephony, Oracle iMeeting (web chat), Oracle iPortal, and Oracle eMail Center.
- Supported the Government Solutions/Business Solutions/Treasury Division. The focus of this position was to analyze, develop, and apply my knowledge of the Federal Enterprise Architecture, Federal Enterprise Architecture Framework (FEAF), architecture methodologies (e.g., OMG Model Driven Architecture), architecture tools (e.g. System Architect, Metis, OptimalJ, Oracle JDeveloper10g etc.) in the context of division, operation unit, business unit, and sector projects and activities.

ORACLE DEVELOPMENT**04/1999 TO 03/2001****Software Development Lead**

- Supporting the architecture and development of core components serving as a foundation for all Oracle CRM products. The scope of this position involved making key decisions on CRM foundation component architecture, design of CRM foundation components, implementation of CRM foundation components (i.e., PLSQL, SQL, and Java), testing of CRM foundation components, and operational support for CRM foundation components at customer sites. I was responsible for the design and development of the key component in the Oracle e-Business Suite for tracking customer touch points (Interaction History).

MITRE CORPORATION**05/1995 TO 03/1999****Software Architect**

- Supporting development of a distributed architecture and prototyping of Geospatial Information System (GIS) components for an Intelligence Agency system. The scope of this position involved the development of a distributed worldwide architecture across multiple GIS systems. Activities on this system were focused on developing a large set of CORBA IDL interfaces across a set of major contractors.

UNISYS**01/1993 TO 05/1995****Senior Software Engineer**

- Supporting technology insertion across projects within Unisys Defense sector. The scope of this position involved the design and implementation of a software reuse program, SEI CMM program, and design and implementation of a software metric program. The insertions of these technologies were applied across various Navy and FBI projects.

INSTITUTE FOR DEFENSE ANALYSES

06/1986 TO 01/1993

Senior Software Engineer

- Provided detailed analyses for the DoD with respect to the implementation and utilization of TCP/IP protocols from both a standards and commercial products perspectives. The DoD was assessing both TCP/IP and potential migration to the ISO OSI protocol stacks.
- Member of the DoD Language Ada standards committee for real-time embedded systems. Served as one of several DoD liaisons for influencing new revisions to the Ada programming language for real-time embedded features.
- Software reuse lead for the DoD Strategic Defense Initiative (SDI). This position involved organizing many DoD organizations and their software contractors to analyze and assess the potential of software reuse for the SDI program. Published a large number of technical papers and conference proceedings for this activity.

E-SYSTEMS

06/1986 TO 07/1983

Software Engineer

- Designed and implemented the first Ada implementation of TCP/IP for the DoD. This implementation was utilized by several government organizations under the DoD Ada directive.

TIMEPLEX CORPORATION

10/1982 TO 07/1983

Software Test Engineer

- Position required development of test scripts and design of hardware interfaces to verify/validate several products in Timeplex's telecommunication multiplexer product family

EDUCATION

PH.D.	Software Engineering George Mason University - 1998
M.SC.ENG.	Computer Engineering University of South Florida -1986
M.SC.	Chemistry University of Toledo -1980
B.SC.	Chemistry Adrian College - 1976

Training/Certifications/Awards/Professional Organizations**AWS Certified Machine Learning – Specialty 2020****AWS Certified Big Data – Specialty - Training****AWS Certified Solutions Architect Associate - Training****AWS Certified Cloud Practitioner 2020 - Training****Certified Information Systems Security Professional (CISSP)****Scaled Agile Framework Practitioner (SP)****Certified Oracle Technical Architect/Insight Program Director****Oracle 11g Database Security Training****Oracle Identity Manager 11g: Essentials****Developing Secure Java Web Services, Java EE 6****Oracle AS 10g: High Availability Training****Oracle JDeveloper 10g Training****Object Management Group CORBA Certification****Unified Modeling Language – Architecture and Design Training****Oracle NSG Consulting Performance Award****Apptis Consulting Performance Award – Blade System Architecture, Design and Deployment for Military Treatment Facility Centers****Member IEEE****Member ACM**

BOOK REVIEWS

2016

Savitch, Walter. Absolute Java, Hoboken: Pearson Higher Education, 2016. Print

2020

Ansari, Shamshad. Building Computer vision Applications Using Artificial Neural Networks: With Step-by-Step Examples in OpenCV and TensorFlow with Python, Apress, 2020.

PROPOSALS & GRANTS

2020

GMU Curriculum Impact Grant, Building a Highly Qualified, Creative, and Adaptable STEM Workforce through Collaborative Multi-Disciplinary Research in Data Science Graduate Programs, Harry Foxwell, Ioulia Rytikova, James Baldo, and Mihai Boicu,

2020

Stargazer Proposal – This proposal was for developing data analytics training modules for the United States Government Intelligence Community. The GMU part of this contract is around 1 million dollars for course development and course execution services. Contract proposals are still being evaluated by United State Government. Proposal prime is Lockheed Martin and proposal was submitted in late January 2020.

Publications

2021 CoNECD Conference, Data Analytics Engineering – Potential Bias in Data, Algorithms, and Models, January 2021
Data Labeling Service – An Approach for supporting Machine Learning across the Enterprise– United States Government – August 2020
Foxwell Harry, Baldo James, Rytikova Ioulia, “George Mason University's Interdisciplinary Data Analytics Engineering Master’s Program”, 7 th BDAEDCON International Big Data & Analytics Education Conference, June 2019, College Park MD, USA.
Data Science Workbench – Specification for supporting Data Centric Applications: data lakes, data services, and hosting service, United States Government – January 2017
Data Brokers – Market Survey of Tools, United States Government – July 2016
Paper: OOPLSA98 Applying Software Architecture as a Method workshop titled “An Experience Report on using the Unified Modeling Language (UML) in the context of Architecture Representation”, October 1998 in Vancouver, BC, Canada
Paper: OOPLSA98 Object Technology and Product Lines workshop titled “United States Imagery and Geospatial Information System (USIGS) Architecture.”, 18 October 1998 in Vancouver, BC, Canada
International Conference on Computer Science and Informatics titled, A MEASUREMENT FRAMEWORK FOR ORGANIZATIONAL SOFTWARE REUSE ATTRIBUTES, Duke University, October 23-28, 1998
Ph.D. Abstract accepted for the 8 th European Conference on Object-oriented Programming (ECOOP) Workshop for Doctoral Students in Object-orient Systems, part of the 12 th ECOOP, Brussels, Belgium, July 20 - 24, 1998.
Ph.D. Thesis, A Measurement Framework for Organizational Software Reuse Influence Factors, George Mason University, May 1998.
An Experience Report on using the Unified Modeling Language (UML), 1998 Software Engineering and Economics Conference, The MITRE Corporation, McLean, VA, April 1998.
Software Reuse Standards, Standard View, ACM, Vol. 5, No.2, June 1997. (Co-authored James Baldo Jr., James Moore, Dr. David Rine).
Software Reuse Metrics Working Summary, Proceedings Reuse97 Workshop, Morgantown, WV, Aug. 1997.
Maintenance Measurement for Reuse-Based Domain-Specific Software Product Lines 1999 Software Engineering and Economics Conference, The MITRE Corporation, McLean, VA, April, 1997.
Maintenance of Reuse-Based Domain-Specific Software Product Lines, International Conference on Software Maintenance 1996, Monterey, CA, 4-8 November 1996.
Software Reuse Metrics Working Summary, Proceedings Reuse96 Workshop, Morgantown, WV, Aug. 1996.
Non-Technical Influence Factors for Measuring Software Reuse, 1996 Software Engineering and Economics Conference, The MITRE Corporation, McLean, VA, 2-3 April, 1996.
Panel: Object-oriented Programming and Software Maintenance, Tri-Ada95 Proceedings, Tri-Ada95, Anaheim, CA, Nov. 1995.
Software Reuse Metrics Working Summary, Proceedings Reuse95 Workshop, Morgantown, WV, Aug. 1995.

Technology Transition and Software Reuse, Tri-Ada94 Proceedings, Tri-Ada94, Baltimore, MD, Nov. 1994.
Software Reuse Metrics Working Summary, Proceedings Reuse94 Workshop, Morgantown, WV, Aug. 1994.
STARS RTTA Domain Analysis Workshop proceedings, March 1994.
Presentation: CARDS Architecture Workshop, Software Architecture, Reuse, and Maintenance, Morgantown, WV, 17 November 1993.
STARS RTTA Reuse Package Description Document, October 1993.
STARS RTTA Reuse Planning Workshop proceedings, September 1993.
CRP Report - Issues in Large-Scale Information Retrieval, IDA, September 1992.
SDI BM/C3 Software Technology Assessment, Phase One Engineering Team, September 1992
SDI Counter Force Study, Phase One Engineering Team, February 1992.
Proceedings of the Workshop on Legal Issues in Software Reuse, IDA Document D-1004, July 1991.
Non-Technical Barriers to Software Reuse, Report from the STARS/Users Workshop, September 1990.
An Assessment of Software Portability and Reusability for the WAM Program, IDA Paper P-2456, September 1990.
Strategy and Mechanisms for Encouraging Reuse in the Acquisition of SDI Software, IDA Paper P-2494, September 1990.
Reuse in Practice Workshop Summary, IDA Document D-754, July 1989.
Timing Abstraction Issues in Ada, 3rd International Workshop on Real-Time Ada Issues, June 1989
Scheduling Aperiodic Tasks with Hard Deadlines in a Rate Monotonic Framework, Real-Time Systems Newsletter, IEEE Computer Society, Spring/Summer 1989.
Technical Cooperation Program: Real-Time systems and Ada Workshop, IDA Memorandum Report M-540, 21-23 June 1988.
Impact of Transition from DoD to ISO OSI Communication Protocols, IDA Paper P-2041, September 1987.
Minimum Requirements for CUS Workstation, IDA Paper P-2040, September 1987.
DoD Communication Protocols Developed in the Ada Programming Language, Defense Electronics, December 1986.
Command and Control Information System Interoperability Study, IDA Memorandum Report M284, October 1986.
Communications Performance of Ada on Ethernet, Conference Proceedings, ACM 24th Annual Southeast Region Conference, April 1986.
General Purpose Computer Interface for the Chemical Laboratory, Master's Thesis University of Toledo October 1980