Nelson E. Barnes, Jr.

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EDUCATION

- **Ph.D.** Management of Information Systems**,** The University of Alabama, Tuscaloosa, AL, 2024
- **M.S.** Computer and Software Engineering**,** The Univ. of Alabama in Huntsville, Huntsville, AL, 2002
- **M.S.** Industrial and Systems Engineering**,** New Mexico State University, Las Cruces, NM, 1997

PROFESSIONAL SUMMARY

Mr. Barnes has over 25 years of experience in all phases of software development and in the areas of total systems design and integration. He has worked on a wide variety of technical projects including: Providing system specifications, hardware/software compatibility assessments, software design, software development and integration expertise for an assortment of systems; Developing goals and objectives for business process management and technology integration; Ensuring reliable software integration and interoperability across multiple platforms for various programs; and Architecture development for an assortment of Service Oriented Architecture (SOA) systems. He has performed projects for the following customers: Alabama Department of Transportation, The Department of Watershed Management for the City of Atlanta, United States Department of Defense (Army, Air Force, and Navy), The Missile Defense Agency, United States Army Corps of Engineers, General Dynamics, Boeing, Raytheon, and others.

PROFESSIONAL BACKGROUND

- Faculty Member – Alabama A&M University, Normal, Alabama (2005 - Present)
- Provided software architecture design and development expertise for both the Real Estate Management Information System (REMIS) program and the Real Estate Corporate Information System (RECIS) programs
- Provided software design, development and integration expertise for both the Tactical Airspace Integration System (TAIS) program and the Blue Force Tracker (BFT) programs
- Provided software development, analysis and testing in support of the MDA web portal as well as contributed to the development of goals and objectives in business process management and technology integration
- Assisted with determining system specifications, input/output processes, and assessment of hardware/software compatibility on a wide range of military defense systems
- Ensured integration and interoperability of applications across multiple platforms
- Provided embedded systems technical expertise in the specification, design, development and testing for the Joint Tactical Radio System (JTRS)
- Provided software design and development expertise for the Post-Engagement Ground Effects Model (PEGEM) program
- Provided software design and development expertise to a digital radar test driver for a missile defense system on the Radar Digital Signal Injection System (RDSIS) program
- Designed and developed radar components and models and supported real-time code generation and testing
- Ensured reliable software interoperability across multiple platforms on an assortment of programs
- Guaranteed successful software integration of COTS and various proprietary systems
- Architecture development of the underlying Service Oriented Architectures (SOA) for a variety of systems
- Provided data cleansing and data analysis for The Department of Watershed Management

TECHNICAL SKILLS

- Over twenty-five years of experience in all phases of software development and in the areas of total systems design, integration, and interoperability
- Experience in all phases of software development and in the areas of total systems design, integration, and interoperability
- Extremely proficient in several programming languages such as C, C++, C#, Objective-C, Java, Python, and various scripting languages
- Fully knowledgeable in all aspects of information systems and software systems design and development
- Proven ability to develop and deliver systems on schedule and under budget
- Excellent communication and training skills

RESEARCH INTERESTS

- Mobile Device Development
- Neural Networks and Machine Learning
- Robotics and Autonomous Vehicles (Ground, Marine, Aerial)
- Software Engineering
- Software Project Management
- Information Systems Analysis
- Information Systems Security

RESEARCH, GRANTS, AND CONTRACTS

- Training for Media Fusion, Inc. – Topic: Introduction to C++ programming (11/05 – 5/06)
- Training for AAMU Computer Science Club – Topic: Introduction to C and C++ (10/04 – 11/04)
- Client/Server Sensor System for Triumvirate Consulting (2000)
- INTERSCADA System development for EMT, Inc (2004)
- Air Force Online Recruiting System for EMT, Inc (2004 – 2006)
- Shuttle Software Error Code Database for Boeing (2006)
- Special Consultant to the Vice President, Boeing - Huntsville Business Operations (2007)
- Web Service Design and Development for Knowledge-Based Systems for MDA (2008-2009)
- Records Management System Study and Analysis with SSI and USCOE (2010)
- Web Service Design and Development for Real Estate System for USCOE (2011)
- Business System Integration for AT&T, with GSI (2012)
- Senior Software Consultant for STS and USCOE (2012 – 2016)
- Big Data Analysis for Encypro Inc and the City of Atlanta (2018 – 2019)
- Web Repository of Software Testing Tutorials: A Cyber-learning Environment (WReSTT-CyLE) (2014 – 2019)
- Target Detection Algorithms for AAMU RISE and MegaRay, LLC (2021 – 2022)

SELECTED PUBLICATIONS

- "A Performance Evaluation of Memory Hierarchy in Embedded Systems", with A. Milenkovic and M. Milenkovic. 35th IEEE SSST03, March 2003.

- "Requirements Structuring: Applying the Principles of Cohesion", with D. Hale and J. Hale. *Proceedings of the Southern Association for Information Systems (SAIS 200*6), March 2006.

- "The Cohesion-Based Requirements Set (CBRS) Model for Improved Information System Maintainability", with D. Hale and J. Hale, *Proceedings of the Americas Conference for Information Systems (AMCIS 2006),* August 2006.

- "Integrating Software Testing into Computer Science Curriculum Using WReSTT-CyLE", with Y. Fu. ASEE, March 2016.

- "Gamification-Driven Learning Outcomes", with Y. Fu and P. Clark, (Submitted to the International Journal of Game-Based Learning), Fall 2018

PROFESSIONAL MEMBERSHIPS

- Association for Computing Machinery (ACM)
- Institute of Electrical and Electronic Engineers (IEEE)
- Association for Information Systems (AIS)