Charles L. Cartledge

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PROFESSIONAL EXPERIENCE

Old Dominion University, Norfolk, VA, USA

Adjunct professor **2015 — present**

- Teaching senior and Masters level Computer Science courses: Cyber Security Information Assurance, Cyber Security Cryptography, Big Data, Hadoop, MapReduce, Pig, Hive
- Teaching undergraduate and career professional Data Science: Data Wrangling, Data Analysis, Data Visualization, Advanced-R

Tidewater Community College, Virginia Beach, VA, USA

Adjunct professor **2015 — present**

- Teaching sophomore level Computer Science courses: Computer Organization (logic gate level), Advanced Computer Organization (system level components and interconnections), C++

Fulcrum IT, Norfolk, VA, USA

Project manager and senior systems engineer **2011 — 2015**

- Interim Director of Norfolk Operations
- Testing and documentation specialist for an XML based Cross Domain Solution (CDS) specification and Java application
- Project manager to develop and support a Java based Cross Domain Solution (CDS) application
- Analytical lead for team of 21 analysts and software engineers documenting business practices and procedures of a planning and scheduling tool currently in production use
- Project manager of a team of 8 business analysts and software developers supporting a planning and scheduling tool currently in production use, responsible for time recording, review of billings, dealing with customer program managers to resolve billing and purchase request issues
- Design of Single Sign-On option (SSO) for the Ship Maintenance and Logistics Information System (SMLIS) suite of applications
- Drafting and execution of test procedures and test cases between SMLIS applications and applications external to SMLIS
- Management and coordination of up to 20 business and process engineers
- Identification and documentation of external processes and procedures necessary to achieve full functional support to DoD customers
- Providing machine learning, big data, analytics, and analytical support to numerous projects and programs

CLC Enterprises, Virginia Beach, VA, USA

Independent computer consultant **1982 — present**

- Supporting small businesses using MS-DOS, Windows 3.x/9x/2000/XP/Vista, Novel 3.x/4.x, Linux, various Microsoft Office suite packages

- Creating and maintaining Internet and intranet sites using HTML, Java and JavaScript
- Hardware and software recommendation and installation; training, custom programming, trouble shooting and system maintenance
- Developed software used by the City of Virginia Beach for training people suffering from cerebral palsy

ODU Research Foundation, Norfolk, VA, USA

Doctoral Research Assistant   **2007 — 2013**

- Research autonomic creation of computer network data structures for long term preservation of digital data
- Design, test, document and present novel and new ideas about data presentation
- Provide guidance and direction to junior research assistants and Master degree students

Global Defense Technology & Systems, Virginia Beach, VA, USA

Senior software engineer   **2007 — 2010**

- System design, requirements analysis, documentation of next generation Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) system for the United States Coast Guard (USCG)
- Development and testing of real—time interface between shipboard navigation system and automated vessel identification system
- Development of multiprocessor system integrating Oracle databases, Java applications and Arena simulation environments
- Reverse engineering of CRC data fields and development of compatible interface modules to prototypes of the next-generation of Automatic Identification System (AIS) transponders
- Researching and documenting interfaces between and amongst legacy USCG C4ISR systems
- Analyzing requirements, developing and executing hardware, software and interface test procedures
- Troubleshooting interface between state-machine Java application, Oracle databases and Arena based simulation processes

EDO Corporation, Chesapeake, VA, USA

Program manager, system engineer and system programmer   **1984 — 2007**

- Program manager for numerous sonar projects
- System operational specifications, hardware and software engineering, programmer scheduling, budgets and funding
- Customer liaison (US and foreign nationals)
- Requirement elicitation and tracking
- Ship checks prior to system installation
- Post installation checkout
- In-port and at-sea testing and training
- Software trouble report and corrective action tracking
- Managing teams of up to 5 people
- Design, implementation, testing of numerous networked based multi-threaded client-server systems using Java, C++, C, CORBA on different Linux distributions, Windows NT, HP-UX and other operating systems
- Design, implementation and validation of numerous time and event driven simulators to support development and testing of production Command and Control (C2), Navy Tactical Data System (NTDS) and sonar systems

- Implemented high reliability TCP communications subsystem
- Configured and utilized Beowulf cluster to develop real—time sonar performance prediction capability
- Developed and conducted training classes for various systems in the US and over seas
- Design of standardized approach to inter-process communications in real—time command and control system
- Design, implementation, and testing of an enhanced track smoother for use as interface between a sonar and a shipboard anti-submarine weapon system
- Design and implementation of a "plug and play" non-blocking TCP LAN service between high data rate message producer and an unreliable data consumer

USN Reserves

Retired **1973 — 2004**
- Last stationed at Military Sealift Command
- Participated in NATO standardization meetings while stationed at Pentagon OPNAV N75, Expeditionary Warfare
- Trained in Special Operations, Naval Tactical Data Links, Plans and Operations, steam engineering

Delex Systems, Virginia Beach, VA, USA

Computer analyst and system administrator **1981 — 1984**
- Design and implementation of numerous time step models
- Development of automated front ends for existing models
- System administrator for an HP-1000 series mini-computer

Atlantic Analysis Corporation, Norfolk, VA, USA

Computer analyst **1978 — 1981**
- Computer analyst using a series of HP desktop and hand held computers to support reconstruction of USN Fleet exercise and anti-submarine warfare (ASW) tactics evaluation
- Identification of user needs, program development and training of USN and contract personnel

Planning Systems Inc., Virginia Beach, VA, USA

Computer analyst **1977 — 1978**
- Computer programmer on a series of HP desktop computers

EDUCATION

Old Dominion University, Norfolk, VA, USA

Ph.D., Computer Science, 2014
- Thesis Topic: *A Framework for Digital Object Self-Preservation*
- Adviser: *Professor Michael L. Nelson*
- Area of Study: *Autonomic Systems and Graph Theory as applied to Digital Library Preservation*

M.S., Computer Science, 2007
- Thesis Title: *Investigation into Real–Time Sonar Performance Prediction Using Beowulf Clustering*

- Adviser: *Professor Chester E. Grosch*
- Area of Study: *Real–time processing of data in a distributed processing environment*

Oregon Institute of Technology, Klamath Falls, OR, USA

B.E.E.T, Electronic Engineering Technology, 1974

- Electronics specialization (emphasis on electro-magnetics and digital computers)
- Minor in computer programming and software development

University of Alaska, Fairbanks, AK, USA

A.E.E.T, Electronic Engineering Technology, 1972

- Electronics troubleshooting and repair
- Minor in computer programming and mathematics

PUBLICATIONS

- 2014: Joint Conference on Digital Libraries; London, UK: When Should I Make Preservation Copies of Myself?
- 2012: ODU Computer Science Technical Report; Norfolk, VA, USA: When Should I Make Preservation Copies of Myself?
- 2011: ODU Computer Science Technical Report; Norfolk, VA, USA: Connectivity Damage to a Graph by the Removal of an Edge or a Vertex
- 2010: ACM Conference on Hypertext and Hypermedia; Toronto, Ontario, Canada: Analysis of Graphs for Digital Preservation Suitability
- 2009: Joint Conference on Digital Libraries; Austin, TX, USA: A Framework for Digital Object Self-Preservation
- 2009: Joint ACM and IEEE Conference on Digital Libraries; Austin, TX, USA: Unsupervised Creation of Small World Networks for Preservation of Digital Objects
- 2008: Joint ACM and IEEE Conference on Digital Libraries; Pittsburgh,PA, USA: Self-Arranging Preservation Networks
- 2007: Old Dominion University Master's Thesis: Investigation into Real–Time Sonar Performance Predictions Using Beowulf Clustering
- 2004: European Conference on Underwater Acoustics; Delft, Netherlands: Investigation into Real–Time Sonar Performance Predictions Using Beowulf Clustering
- 2004: Undersea Defence Technology; Nice, France: Investigation into Real–Time Sonar Performance Predictions Using Beowulf Clustering
- 2003: Undersea Defence Technology; Malmo, Sweden: Sonar Modeling and Performance Predictions Using Beowulf
- 2001: CompactPCI Systems; Industry Feature COTS – The Development of a shipboard LAN Access Unit: A case history

COMMUNITY
ACTIVITIES

- Member of the Employer Support of the Guard and Reserve (ESGR), Norfolk, VA (an advocacy group for Reservist and Guardman's rights and responsibilities)
- Member of the Reserve Officers Association (ROA), Norfolk, VA (an advocacy group for Reservists and Guardmans)
- Member of the Sovereign Military Order of the Temple of Jerusalem, the Priory of the Monitor and the Merrimac, Norfolk. VA (Knights Templar, a service organization)
- Past Member Board of Directors, VetsHouse Inc., Virginia Beach, VA
- Former Boy Scout Scoutmaster for Troop 481, King's Grant Baptist Church, Virginia Beach, VA
- 1999 Member of Who's Who in Information Technology

SECURITY CLEARANCE	Current Department of Defense information available upon request
CITIZENSHIP	USA
PROFESSIONAL INTERESTS	Autonomic systems, real–time applications, distributed processing, long-term preservation of digital data, Big Data, NoSQL

Misc. keywords
and topics
designed for
search engines

- Designed and documented the RMAIS JCN interface to AIM and AIMxp, part of the SMLIS suite of applications.
- Documented the SWLIN flat file interface between SUBMEPP and AIM.
- Developed WireShark software modules to analyze graceful fail-over LAN and WAN protocols.
- Designed, developed, debugged multi-threaded applications in Java, C, C++ and other languages.
- Familiar with various software symbolic debuggers.
- Modeled, designed, implemented high performance computer clusters using Beowulf technology to support real-time signal processing.
- Implemented and maintained RCS and Subversion version control systems.
- A proven ability to work well independently or with teams of people.
- Analysis of distributed sonar system to identify single points of failure.
- Developed Perl based CGI scripts to present web pages based on harvested and scraped meta-data from independent databases.
- Development of system architecture, system design, IDS, system integration documents.
- Designed networks based on required capacity and latency requirements.
- Excellent oral and written communication skills.
- Experienced in the movement of distributed application components to meet bandwidth and CPU constraints.
- Extensive review of current and legacy software looking for refactoring opportunities.
- Detailed understanding of TCP and UDP LAN message protocols.
- Familiar with Digital Library meta-data used for document storage and retrieval (MARC, XML-MARC, Dublin Core, Buckets, Open Archive Initiative Protocol for Harvesting Meta-data).
- Java Swing and Java AWT used in construction of shipboard command and control simulator.
- JavaScript used to generate permuted keyword index of conference papers.
- Modeling of distributed sonar system to determine feasibility of process consolidation to reduce board count within network bandwidth constraints and to develop graceful degradation approach.
- Perl used to harvest Internet WWW pages.
- Routinely conducted informal and ad-hoc training for entry and mid-level software developers.
- Software development in a mentoring role.
- System installation, testing and training with US and foreign navies.
- Experienced and proficient in a wide range of languages and integrated development environments, including: C, C++, C#, .NET, Java, JavaScript, Perl, R, python, Arena simulation, various assemblers, various BASICs, bash, ksh, csh, DOS, emacs, JQR, RKward, eclipse, visual studio team system (VSTS), CORBA, COBOL, FORTRAN, UML, X, Access, Oracle, SQL and others.
- Experienced with a number of operating systems (OS's): UNIX, Linux, Solaris, MS-DOS and various versions of Windows.
- Reverse engineering of checksums and CRCs.
- Specification, design, development, test and training of hard and soft real-time systems.
- Specification, design, development, test and training of time step and event driven simulations.
- Executive Officer (XO), Operations Officer (OPS), Training Officer (TO) and staff officer at Fleet and Pentagon level commands.
- Developed system requirements specification (SRS), interface requirements specification (IRS), interface design document (IDD), interface control document (ICD)

as part of software development life cycle (SDLC) process for various systems and projects.

- Developed real-time simulators and parsers for TADIL-A, TADIL-B, Link-1, Link-11, Link-14, Link-16, Link-22, OTCIXS, C4ISR, gyrocompasses, NMEA-0182, GPS, DGPS, RDF, AIS, STEDS, CDS, ACDS, MK86, MK92.
- Researched and wrote Interface Design Documents (IDDs) and Interface Control Documents (ICDs) for the following equipment/systems: Aeronautical General Instrument (AGI) Electromagnetic Speed Log, Aeronautical General Instrument (AGI) meteorological (MET) system, Air Defense System Integrator (ADSI) Link-11 processor, AN/SPA-25G Indicator Group, AN/SPS-73 Surface Search Radar, AN/SSR-1 Fleet Broadcast System Receiver, AN/WLR-1H Countermeasures Receiving Set, AN/WRN-6 Satellite Signals Navigation Set (classified GPS), Furuno DFFl Depth Sounder, Furuno FM8800S Digital Selective Calling (DSC), Furuno GP-37 Differential Global Positioning System (DGPS) receiver, Furuno PG-500 Fluxgate Compass, Ideal Electronic Security Koden model 538 Radio Direction Finder (RDF), Ideal Electronic Security Koden model 580 Radio Direction Finder (RDF), Ideal Electronic Security Koden model 581 Radio Direction Finder (RDF), Knudsen 320N Navigational Echosounder, L3 PROTEC-M Automatic Identification System (AIS) transceiver, L3 Ross Digital Selective Calling DSC-500 transceiver, Litton SRD-331 Doppler Speed Log, Northrop Grumman Sperry Marine NAVIPILOT 4000 Heading Control System, Northrup Grumman SRD 500 Dual Axis Doppler Speed Log, Raytheon PilotStar D Heading Control System, Raytheon V850 Depth Sounder, Reiker RDD21-30-E Inclinometer, Saab R4 Automatic Identification System (AIS) transceiver, Shipboard Infrared Visual Sensor System (SIRVSS), Sperry Mark 27 Mod 1 Gyrocompass, Sperry Mark 39 Mod 3(A) Inertial Navigation System, Tech-Comm TC-5025CICGA Radio Direction Finder (RDF), Teledyne Meridian Gyrocompass, Tomahawk Command and Control System(TC2S) Communications System (TCOMMS) Interface Processor (TCIP) V(14) Replacement (TVR-1), Trimble NT300D Differential Global Positioning System (DGPS) receiver.