Resume

AUGUSTINE SAMBA
Computer Engineering Technology
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EDUCATION

- 1983 Ph.D. Computer Science. The University of Liverpool, England
- 1979 M.Sc. (Applied Mathematics). The University of Liverpool, England

CURRENT RESEARCH

- Real-Time Network Management and Control of Next Gen Mobile Networks
- Wireless and Mobile Network Communications Systems and Technologies
- Cloud Computing Architectures

HONORS AND AWARDS

National Awards:

- US Patent No.8,868,725 B2 "APPARATUS AND METHODS FOR REAL-TIME MULTIMEDIA NETWORK TRAFFIC MANAGEMENT & CONTROL IN WIRELESS NETWORKS", Augustine S. Samba, October 21, 2014
- US Patent No. 6,289,095 B1: NPA SPLIT MANAGEMENT IN INTELLIGENT NETWORK ENVIRONMENT, Augustine Sylvester Samba, Anthony Buttitta, September 11, 2001
- US Patent Application No. 2002/0196793 A1, END-USER COMMUNICATION SYSTEMS ACCESS NETWORK, Augustine Samba, Atila Boros, Olu E. Lafe, December 26, 2002
- US Patent No. 5,539,815A : Network Call Routing Controlled by a Management Node, Augustine S. Samba, July 23, 1996,
- Federal Communications Commission (FCC) committee Member: DEVELOPED TELECOMMUNICATIONS INDUSTRY STANDARDS FOR NUMBER POOLING (1998)
- Federal Communications Commission (FCC) committee Member: DEVELOPED THE TELECOMMUNICATIONS INDUSTRY STANDARDS FOR WIRED AND WIRELESS LOCAL NUMBER PORTABILITY (1998)

International Awards:

Canada Patent Awards (CIPO)

- CA 2167862 NETWORK ROUTING CONTROLLED BY A MANAGEMENT NODE CALL/ACHEMINEMENT DES APPELS DANS UN RESEAU COMMANDE PAR UN APPEL A UN NOEUD DE GESTION, Augustine Sylvester Samba, September 28, 1999

- CA 2280102, NPA SPLIT MANAGEMENT IN INTELLIGENT NETWORK ENVIRONMENT/GESTION DE DIVISION DE PLAN DE NUMEROTAGE DANS UN ENVIRONNEMENT DE RESEAU INTELLIGENT, Augustine Sylvester Samba, Anthony Buttitta, July16, 2002,

European Patent Award (Britain, France, Germany) Patent Award (EPO)

- EP1005238 B1: NPA SPLIT MANAGEMENT IN INTELLIGENT NETWORK ENVIRONMENT/ MANAGEMENT DISTRIBUÉE À NPA DANS UN ENVIRONMENT DES RÉSEAUX INTELLIGENTS/ NPA-GETEILTES MANAGEMENT IN INTELLIGENTER NETZWERK-UMGEBUNG,
  Augustine Sylvester Samba, Anthony Buttitta, October 24, 2001

Japan Patent Award (JPO)

- JP**JP,3728154,B** "NPA DIVISION MANAGEMENT IN INTELLIGENT NETWORK ENVIRONMENT", Augustine Sylvester Samba, Anthony Buttitta

Korea Patent Award (KIPO)

- KR2000028730/ 1006337160000, NPA SPLIT MANAGEMENT IN INTELLIGENT NETWORK ENVIRONMENT/ 인텔리전트 네트워크 환경에서의 엔피에이 분할 관리,
  Augustine Sylvester Samba, Anthony Buttitta, October 13, 2006

Telecom Industry Awards:

- Lucent Technologies Intelligent Network Unit (INU) Inventor Recognition Award: OUTSTANDING CONTRIBUTIONS AND TECHNICAL EXCELLENCE. Presented by the INU Vice President, March 2000

- Institute of International Research Conference on Integrating Voice, Video and Data in One Network: OUTSTANDING TECHNICAL PRESENTATION; San Francisco, CA. March 26, 1999.

- Lucent Technologies Intelligent Network Unit (INU) Inventor Recognition Award: OUTSTANDING CONTRIBUTIONS AND TECHNICAL EXCELLENCE. Presented by the INU Vice President, March 3, 1999

- PATENT RECOGNITION AWARD, Lucent Technologies. Presented by Research Vice President & CTO of Communications Software, February 7, 1999

- INVENTOR RECOGNITION AWARD. Presented by AT&T Chief Technical Officer & New Concepts Chairman, Services Intellectual Property Committee, June 7, 1995

Academia Awards:

- Fulbright Scholar, Summer 2013
- Fulbright Scholar, Summer 2012
- Univ. of Maryland Univ. College Notable Scholarly Activity Recognition Award, May10, 2011
  Presented by Dr. Susan C. Aldridge (President), Dr. Greg von Lehmen (Provost) and Dr. Michael S. Frank (Senior VP Academic Programs and Dean of Grad School)
- Kent State University Inventor Recognition Award, May 24, 2010
  Presented Dr. Robert G. Frank (Provost) and Dr. John West (VP of Technology Transfer and Research Programs)

PROFESSIONAL EXPERIENCE

1. @ KENT STATE UNIVERSITY

Employment History

- Associate Professor Fall 2007 – Present
- Visiting/Assistant Professor Fall 2004 – Fall 2007

i. Curriculum Development (College of Applied Engineering Sustainability and Technology)

Computer Engineering Technology: I created and developed the Computer Engineering Technology concentrations for the BS and MS degree programs respectively in Applied Engineering and Technology:

The Computer Engineering Technology (CET) curriculum, offered at both the BS and MS level, prepares graduates for careers in wireless networking, telecommunications, information and communication technologies. CET students study the design of wireless network systems, telecommunications systems, networking hardware and computer hardware architecture and engineering technologies.

CET students are provided with the opportunity to conceptualize, develop and analyze requirements engineering specifications for practical systems, such as **Cell Phone Communication for Deaf People**, **Automatic Checkout Systems**, **Mobile Monitoring and Control systems of Remote Appliances in the Home**; and telecommunications systems

The MS and BS CET curricula were approved by Kent State University in Spring 2012 semester; and subsequently accredited by ATMAE in Fall 2014 semester

The following is a summary of the new courses I have created and developed for the BS and MS Computer Engineering Technology concentrations:

TECH 26010 - INTRO COMPUTER ENGINEERING TECHNOLOGY

Course describes Computer Engineering Technology concepts and principles. Covers computer hardware, computer hardware operations, digital systems design, networking hardware, technology of networking, computer aided design and embedded systems

TECH 26301 - NETWORKING HARDWARE I

This is a hands-on, applied engineering-focused course emphasizing the design, operations, and performance aspects of networking hardware. Topics include networking hardware operations, characteristics, configurations, and troubleshooting fundamentals. Course coves networking standards, protocols, configuration, topologies, and administrative fundamentals as related to networking hardware systems.

TECH 36302 - NETWORKING HARDWARE II

This course is a continuation of TECH 26301. In-depth coverage of LAN, VLAN and WLAN enterprise networking systems hardware with a focus on network hardware and software configuration, fault analysis, diagnostics, and troubleshooting. Topics include router and switch operation, programming and configuration, along with overall enterprise network maintenance, troubleshooting, and repair.

TECH 43222 - COMPUTER HARDWARE ENGINEERING AND ARCHITECTURE

This course covers the internal architectures and operations of digital computers. Topics include computer processor datapaths and control, computer memory datapaths and control, pipelining and parallel processing, memory architecture and management, I/O control, cache, system bus architecture and properties, and computer control timing and synchronization.

TECH 46330/56330 - VISUAL BASIC PROGRAMMING IN ENGINEERING TECHNOLOGY

This course covers the concepts of object-oriented, event-driven programming with hands-on application of those concepts to solve engineering-related problems utilizing the current version of visual basic. At least 50% of the course involves building various Apps using the Visual Basic .NET programming language

TECH 46350 - NETWORK MANAGEMENT AND DESIGN TECHNOLOGY

This course covers the technical aspects of centrally managed and distributed Local Area Networks and Wide Area Networks, with an emphasis on the techniques used to maintain and improve the performance of telecommunications and data networks. Students use software packages to monitor the real-time performance of a network and to diagnose various networking hardware and software problems. Examples of current specific network management systems are reviewed.

TECH 46411/56411 - REQUIREMENTS ENGINEERING AND ANALYSIS

This course describes requirements engineering concepts for practical systems. Topics include identifying stakeholders and how to work with them effectively, requirements elicitation techniques, requirements engineering in the Problem Domain, developing Use-Case scenarios, reference models, systems requirements specifications, validating and prototyping requirements and case study presentations by Industry SMEs. Some knowledge of object oriented is programming language assumed.

TECH 46312 - WIRELESS NETWORK AND TELECOMMUNICATION SYSTEMS

Course describes cellular, mobile and the Public Switch Telephone Network infrastructures; electronic switching systems, transmission systems, and emerging wireless networks.

TECH 66330 ADVANCED VISUAL BASIC PROGRAMMING IN ENGINEERING TECHNOLOGY

This is a hands-on programming course. Topics covered include advanced classes, reports, polymorphism, LINQ, SQL Server Database, Database applications, creating web forms,

creating web applications, programming web forms, web-based mark-up languages for programming web forms

TECH 66350 - ADVANCED NETWORK MANAGEMENT AND DESIGN TECHNOLOGY

This course covers network management techniques and design for broadband WAN, network management applications, network management tools, systems and engineering, RMON, latest trends in network management technology and standards

TECH 66380 - ADVANCED NETWORKING

Course describes computer networks. Topics covered include network hardware and software, reference models, physical layer, data link layer, medium access control sub-layer, the network layer, the transport layer, application layer and network security

TECH 66411 - WIRELESS AND TELECOMMUNICATION SYSTEMS REQUIREMENTS ENGINEERING

Course covers methods and techniques to develop requirements engineering specifications for wireless and telecommunication systems. Topics covered include Industry standards for telecom and wireless communications, reference data models, functional requirements specifications, performance analysis; the requirements review, and systems verification.

ii. Curriculum Development for The School of Digital Sciences (DSCI)

I developed the **Digital Systems Telecommunication Networks** concentration at the MS and BS degrees respectively in Digital Sciences. This effort involved contributions of the other 4 DSCI initial committee members.

The **Digital Systems Telecommunication Networks** concentration focuses on the communication infrastructure needed by an organization and the design and management of a telecommunication system and computer network to meet those needs.

I designed and developed two new DSCI specific courses:

DSCI 26010 – TELECOMMUNICATIONS INFRASTRUCTURE

This course describes the communication infrastructures for the public switch telephone network (PSTN), wireless networks and packet networks. Topics covered include protocols, standards, the signaling network, message transport network, cellular communications and fixed wireless, wireless LANs, WANS, MANs Network Management, Emerging Network Technologies (4G)

DSCI 60998 - CAPSTONE PROJECT IN DIGITAL SCIENCES

This course provides an integrative experience, bringing together aspects of the student's required coursework in the major and concentration via a research paper, individual project, internship, or practicum.

iii. Teaching Responsibilities at KSU

The following is a summary of course that I created, and recently lectured

Term	Year	Course	Total Course Enrollments
Fall	2015	TECH 56411/46411- Requirements Eng. and Analysis	195
Fall	2015	TECH 56350 - Network Management and Design	200
Fall	2015	TECH 56350 – Visual Basic Programming in Engineering Technology	20
Fall	2015	TECH 66380 – Advanced Networking	140
Fall	2015	TECH 56312/46312 – Wireless Networks and Telecommunication Systems	37
Fall	2015	TECH 64312 –Advanced Wireless Telecom Systems and Network Technologies	74
Summer	2015	TECH 66380-001 – Advanced Networking	48
Spring	2015	TECH 66380 – Advanced Networking	180
Spring	2015	TECH 66350 - Advanced Network Management & Design	25
Spring	2015	TECH 56330/46330 – Visual Basic Programming in Engineering Technology	20
Spring	2015	TECH 46411/56411 - Requirements Engineering & Analysis Technology	156
Spring	2015	DSCI 26010 – Telecommunications Infrastructure	34
Fall	2014	TECH 64095 - Networking Hardware and Applications/Networking Hardware I	40
Fall	2014	DSCI 60998 – Capstone in Digital Sciences	19
Fall	2014	TECH 56411/46411 Requirements Engineering & Analysis Technology	30
Fall	2014	TECH 56350/46350 – Network Management and Design	40
Fall	2014	Tech 56350/46350-002 Network Management and Design	60
Fall	2014	TECH 56330/46330 – Visual Basic Programming in Engineering Technology	20
Spring	2014	TECH 66380 – Advanced Networking	30
Spring	2014	TECH 56411/46411-001 Requirements Engineering & Analysis Technology	54
Spring	2014	TECH 56330/46330 – Visual Basic Programming in Engineering Technology	20
Spring	2014	TECH 53222/43222 – Computer Hardware Engineering and Architecture	14
Spring	2014	MIS 34070 – Programming Theory and Applications	29
Spring	2014	DSCI 26010 – Telecommunications Infrastructure	38
Fall	2013	TECH 64095 - Networking Hardware and Applications/Networking Hardware I	20
Fall	2013	TECH 56350/46350-001 - Network Management and Design	19
Fall	2013	TECH 56330/46330 - Visual Basic Programming in Engineering Technology	20
Fall	2013	TECH 56411/46411 - Requirements Engineering & Analysis Technology	20
Fall	2013	MIS 34070 – Programming Theory and Applications	19
Summer	2013	TECH 66380 – Advanced Networking	10
Spring	2013	TECH 66380 – Advanced Networking	13
Spring	2013	TECH 56411/46411- Requirements Engineering & Analysis Technology	20
Spring	2013	TECH 56330/46330 - Visual Basic Programming in Engineering Technology	20
Spring	2013	MIS 34070 – Programming Theory and Applications	28
Spring	2013	DSCI 26010 – Telecommunications Infrastructure	20
Fall	2012	TECH 56330/46330 - Visual Basic Programming in Engineering Technology	20
Fall	2012	TECH 53222/43222 – Computer Hardware Engineering and Architecture	10
Summer	2012	TECH 66380 – Advanced Networking	10

iv. KSU CORPORATE CONNECTIONS

I have created and developed the following industry/corporate partnerships in support of the Computer Engineering Technology and the DSCI Telecommunications programs respectively:

- **Allstate Insurance Corporation** Networking Division provided networking lab equipment; Networking Subject Matter Experts (SMEs) have also participated in students' Requirements Engineering project reviews
- **Cisco Corporation:** Several Subject Matter Experts (SMEs) from Cisco corporation, located in Silicon Valley, New York, Washington, Ohio and other US locations; Australia, and UK have on numerous occasions

participated in live reviews of student's Requirements Engineering projects. Recordings of various reviews are maintained at the Cisco secured website

- **The Westfield Insurance Group:** SMEs share presentations of real-world industry solutions with students, participate in students Project reviews. Signed Memorandum of Agreement between. The Westfield Insurance Group and Kent State University

v. Graduate (MS) Students Supervised

- *Tahani Aljohani "Network Traffic Management Techniques"*
- *Terence F. Tama, "WiMAX 802.16e: 4G wireless Broadband High-Speed network"*
- *Srilatha Yenigalla, " Image Encryption using cryptography in Physical Layer"*
- *Sirisha Yalamanchili, "Security in Fiber Optics Networks"*
- *Nuttapong Phantkankum, "Multiprotocol Label Switching"*
- *Chung-Pin Wang, "Qi: Wireless Power Standard"*
- *Abdulaziz N. Alshaqawi , "Storage Area Networks"*
- Sirisha Yalamanchili, "*Next generation Automatic Teller Machine (ATM) System for Disabled Bank Customers"*
- Srilatha Yenigalla, "*Broadband wireless technologies"*
- Farshad Bozorgi, "*A Modified 2-Dimensional Mesh Architecture for Network on Chips"*
- Siva sai tej pasupuleti, "*Emergency Medical Response Systems (EMR)"*
- Tharun Kanth Kolloju, "*Managing Communication Infrastructure of Smart Grid"*
- Jaswanth Kumar Kanamarlapudi,"*Highway Electronic Toll Collection System"*
- Pavan Kumar Kodali, "*Next Generation Intelligent Networks"*
- Saleh Awaja, "*Transitioning to E-learning"*
- Shanthan Kumar Jogavajjala, "*Network Management for Power Line Communication"*
- Srinivas Rao Kothapeta "*Internet Protocol Television System"*
- Vijay Karthik Battina, "*Microcontroller Based Security Authentication for Car using GPS"*
- Santhoshini Vallakati, "*Error Correcting Codes for Wireless Communication"*

Services to Kent State Univ. (KSU)

- Served on committee for the development of Master of Digital Science degree program; Gave presentation to the Ohio Board of Regency (OBR) in 2012
- Served on KSU International Students and Scholar Integration Committee (2010 – Present)
- Served on search committee for the Provost's Faculty Associates for Diversity, Equity & Inclusion (DEI). [2010]
- Served on Provost Search Committee for the Dean of College of Applied Engineering Sustainability and Technology (2012)
- Served on Provost Committee of 5 faculty to create the "School of Digital Sciences (2011 – 2012) http://www.kent.edu/dsci
- Serve on School of Digital Sciences *Interdisciplinary Advisory Committee* (2012 – Present): to advise the school's Director on strategic planning, program development, and other issues
- Serve on the School of Digital Sciences Interdisciplinary Curriculum Committee (2012 – Present): to advise the school's Director on curriculum and course offerings

- Serve on Advisory Board Member for Information Technology at the Maplewood Career Center Ravenna High School (2011 – Present)

PROFESSIONAL EXPERIENCE [CONTINUED]

2. @ THE UNIVERSITY OF MARYLAND UNIVERSITY COLLEGE

Adjunct Professor, summer: 2015, 2011, 2010

1. **Graduate Courses Taught**:
   i. TLMN 645 Wireless Telecommunications Systems
   ii. ITEC 626 9024 Information Systems Infrastructure
   iii. ITEC 620 Information Technology Infrastructure

2. Curriculum Development:

I contributed to the redesign of the TLMN 645, *Wireless Telecommunications Systems* course. The TLMN 645, Wireless Telecommunications Systems, introduces wireless telecommunications systems from wireless LANs and microcells to cellular, personal communications systems (PCS,) and global communications infrastructures. The course covers the technical basis for wireless communications, going over the principles and technological approaches to meeting the wireless needs, and covering voice and data applications, as well as the limitations of the technologies.

3. @ QUIKCAT TECHNOLOGIES (2000 - 2003)

Director, Network Architecture: April 2000 – March 2003

* **CAT Network Intelligent Peripherals (CATNIP):** Developed a novel Wireless Intelligent Network (WIN) concept, which *transforms PDAs to mobile devices for remote location monitoring.* Researched and developed the end-to-end network architecture for implementing CATNIP.

* **QuikCAT Technologies Network Architecture (QNET .G2):** Developed the next generation IP-based QuikCAT network architecture to *support enhanced multimedia data transport and managed IP services for ISPs and Backbone Service Providers*; Produced detailed architecture document; Developed novel algorithms – CAT Division Multiplexing (**CDMUX**), and Enhanced IP (**e-IP**); Developed detailed systems engineering requirements.

* **Scalability Lab:** Developed the systems configuration for the scalability lab; Developed detailed Method of Procedures (MOP) for sizing/benchmarking the **INET/I-ACCELE**

4. @ LUCENT TECHNOLOGIES (1996 – 2000)

January 1999 – April 2000: Lucent Intelligent Network Cross Component Systems Engineer

* Developed the Wireless Intelligent Network (WIN) Service Data Objects for the 3G (Video/Voice/Data) Service Creation Environment
* Developed end-to-end CC Wireless Intelligent Network (**WIN**) Requirements for:
  - Communications Assistance to Law Enforcement Agencies (CALEA)
  - Search Operations by Network Elements
  - Provisioning WIN Triggers
* Developed end-to-end network data model for the Standalone Home Location Register (SHLR) and the Authentication Center (AC) Applications for WIN services
* Developed the end-to-end Network Engineering and CC requirements analysis for deploying Line Information Database (LIDB) feature in 2 Regional Bell Operating Company's networks. *The LIDB is a large database of 30 to 75 million records for subscriber line information and Special Billing Numbers (e.g., Calling Card Numbers, CNAME), accessible via Signaling System 7 networks.*

June 1996 - January 1999: Systems Architect and Lead Systems Engineer,
Advanced Intelligent Network Service Management System (SMS)

- **TCP/IP Systems Engineer**
  * Developed the Systems Requirement Definitions for supporting TCP/IP on the SMS -to-SCP interfaces. *Feature capability is currently deployed in several Telcos including Telecom Italia, Sprint*
  * Developed a novel algorithm (SNEPP) and Requirements for monitoring the state of the SMS -to- SCP TCP/IP interfaces

- **Number Pooling Systems Engineer**
  * Developed the Functional Specification Document (FSD) for supporting the Illinois Number Pooling feature.

- **Wireless Intelligent Network (WIN) Systems Engineer**
  * Developed WIN algorithms and Interface Specifications for supporting **Authentication Center** Applications on the SMS. The algorithm resulted in a throughput increment from 4K to 50K TPH
  * Developed the *FSD and algorithm for supporting the ability to change Subscriber Mobile Identification Numbers (MIN) in near real time.*

- **Local Number Portability (LNP) Systems Architect**
  * Developed the Local Service Management System (LSMS) architecture for LNP. The architecture is comprised of TMN Q3 (CMIP/CMISE) and TCP/IP interfaces to the NPAC and the SCP respectively. The architecture resulted in 30K TPH on the low end HP I-70. The advertised TPH was 10K on a high end HP T-500. *The LNP allows Subscribers to change their Local Service Provider and/or change their Physical location without changing their telephone numbers*.

- **Platform Systems Engineer**
  * Created a novel algorithm, which allows the SMS and SCPs to behave autonomously. *The algorithm results in high throughput and has been successfully re-used to solve other Intelligent Network problems,* including:
  – Wireless Authentication Center Subscriber provisioning
  – Wireless Unique Challenge
  – Wireless A-Key Exchange
  – GSM pre-paid calling card
  – GSM Pilgrim card (Rome)
  – GSM upstream provisioning for AETHOS (Europe)
  – NPA Split
  – Televoting

  ***** Created a novel algorithm, which allows the SMS to remotely perform re-homing of Network Elements. *This feature allows Service Providers to re-configure their Intelligent Network, due to NE capacity exhaust, without service interruptions.*
  ***** Developed the FSD and Procedure for converting the production SMS hardware and concurrently migrating live subscriber records, and retrofitting existing Applications from one platform to a remote site High-end platform, with very minimal service interruption. *This study was successfully completed to meet the diverse needs of two Regional Bell Operating Company's networks*.

5. @ AT&T BELL LABORATORIES (1986 - 1996)

June 1994 - June 1996: Lead Software Engineer, Network Traffic Management (NTM) Systems

- **Automatic Reroute Algorithm (ARA) Lead Software Engineer**
  - Created an innovative algorithm for detecting network congestion, switching congestion, facility failures etc. in real time and automatically rerouting traffic on the least loaded two link path interconnecting the originating and terminating node
  - Developed the system architecture for implementing ARA
  - Lead a team of software engineers for developing the Automatic Re-route Control system
  - This system is deployed in the US and foreign networks

- **Traffic Destination Control (TDC) Management and Automatic Scheduling Lead Software Engineer**
  - Designed and Developed a Finite State Machine (FSM) to handle the TDC communication protocols between the NTM and remote ALCATEL 1240 and UT 100 switches in the Telcom Italia network
  - Designed and Developed network management controls for the ALCATEL 1240 switches in the Telecom Italia network

June 1992 – June 1994: Software Engineer, Total Network Management (TNM) System

- **Surveillance Subsystem Development & System Test Engineer**
  - Designed and developed the surveillance subsystem ("MASYNC") within TNM for monitoring 4ESS/1B switches in the AT&T Toll network. MASYNC communicates with 4ESS/1B via a Multiplex Asynchronous (MASYNC) protocol. *MASYNC is deployed at various Network Management centers in the US.*
  - Developed detailed Inter-System Test plans; and Conducted Inter-System Testing with remote 4ESS/1B switches, CDRP and NDB Network Elements

April 1990 – June 1992: Software Engineer, Common Network Interface for the SS7 Networks

- **Link Fault Sectionalization (LFS) Software Engineer**
  - Designed the system architecture for LFS. The LFS is designed to identify faulty sections and components of digital SS7 links, interconnecting the 5ESS switches, 4ESS switches, AUTOPLEX and the Signaling Transfer Points (STPs) networks, through test procedures initiated from an Operations and Maintenance Center

June 1986 – April 1990: Systems Engineer, Traffic Engineering and Network Planning

- Worked with Telecom Managers to conduct network planning and modernization studies. This entailed developing traffic engineering algorithms, structuring poorly defined (open-ended) customer network problems into tractable problems, modeling and simulation of the Message Transport Networks and providing technical consultations

- Designed and Developed a Traffic engineering modeling system: **T**runk **R**equirement **I**nter-exchange Modeling (TRIM) for network optimization

- **Bangkok Metropolitan Network; and Toll Network**
  * Worked with the Telephone Organization of Thailand (TOT) to model and simulate the traffic flow in the metro and toll networks.
  * Developed detailed modernization alternative plans for the Toll network

- **Seoul, South Korea Local switched Network**
  * Worked with in-country engineers to model, simulate the local switched network traffic, analyze the results and develop alternative network topologies, consistent with the rapidly growing network traffic demands, for resolving traffic congestion

PUBLICATIONS

Click here for recent publications

[1] Augustine S. Samba, "APPARATUS AND METHODS FOR REAL-TIME MULTIMEDIA NETWORK TRAFFIC MANAGEMENT & CONTROL IN WIRELESS NETWORKS", US Patent No.8,868,725 B2 , October 21, 2014

[2] Augustine (Gus) Samba, "Logical Data Models for Cloud Computing Architectures", *IT Professional*, vol.14, no. 1, pp. 19-26, January/February 2012, doi:10.1109/MITP.2011.113 IEEE Computer Society Digital Library: doi:10.1109/MITP.2011.113

[3] A. Samba and I. Bojanova, "Analysis of Cloud Computing Delivery Architecture Models," *Proc. IEEE Workshops of Int'l Conf. on Advanced Information Networking and Applications* (WAINA 11), IEEE Press, 2011, pp. 453–458. ISBN: 978-0-7695-4338-3

[4] Augustine Samba, "Intelligent Traffic Management and Control in Telecommunications Network", "Proceedings of Spring Simulation Multi-conference 2005", April 7, 2005. ISBN 1-56555-296-2;

[5] Augustine Samba, Atila Boros, Olu E. Lafe, END-USER COMMUNICATION SYSTEMS ACCESS NETWORK, US Patent Application No. 2002/0196793 A1, December 26, 2002

[6] Augustine Sylvester Samba, Anthony Buttitta, US Patent No. 6,289,095 B1: NPA SPLIT MANAGEMENT IN INTELLIGENT NETWORK ENVIRONMENT, September 11, 2001

[7] Augustine S. Samba, Network Call Routing Controlled by a Management Node, US Patent No. 5,539,815A, July 23, 1996

BOOK CHAPTER/RESEARCH REPORT

[8] A. Nejat Ince and Ercan Topuz, Modeling and Simulation Tools for Emerging Telecommunications Networks; Chapter: A Network Management Framework for Emerging Telecommunications Networks. Springer 2006. ISBN 0-387-32921-8.

[9] The Design and Implementation of Cost-effective algorithms for Direct Solution of Banded Linear Systems on the Vector Processor System-32 Supercomputer, NASA-CR-176811 19860017520, 1986

PUBLICATIONS [CONTINUED]

RESEARCH and DEVELOPMENT (R&D)

(SELECTED PEER-REVIEWED PAPERS)

*[10] A. Samba, A. Boros and O. Lafe (*2002) End-User Communications System Access Network. QuikCAT Technologies, September 25, 2002, 19 pages.

[11] *Augustine Samba, (*2002). *The Design of MicroCell Mobile Terminal (MMT) Units for wireless communications.* QuikCAT Technologies, July 1, 2002, 27 pages.

[12] *A. Samba, (*2001) Internet Accelerator ("iNet"). QuikCAT Technologies, September 18, 2001, 22 pages**.**

[13] *A. Samba, (*2000) *CAT Network Intelligent Peripherals for Wireless Intelligent Networks (CATNIP)*. QuikCAT Technologies, September 29, 2000, 24 Pages.

[14] *A. Samba, (*2000) The QuikCAT Optimized (Level-3) Network Architecture. QuikCAT Technologies, September 25, 2000, 19 Pages.

[15] *Augustine Samba, and Anthony Buttitta (*1998) NPA Split Management in Intelligent Network Environment*. Lucent Technologies,* September 30, 1998, 47 pages.

[16] *Augustine Samba & William Belson, (*1999) *Data Requirements Analysis and Modeling of Standalone Home Location Register (SHLR) and Authentication Center Databases for CDMA Wireless Networks".* Lucent Technologies October 10, 1999, 21 Pages.

[17] Augustine Samba, (1999). End-to-End Network Requirements and Gap Analysis for the BellSouth Line Information Database (LIDB). Lucent Technologies, March 12, 1999, 30 pages.

[18] Augustine Samba and Eduardo Mu (2000). The Illinois Number Pooling Feature Requirements. Lucent Technologies January 29, 1999, 15 pages.

[19] Augustine Samba, (1998), Ameritech Service Management System (SMS) K-460 Conversion. Lucent Technologies. December 4, 1998, 18 pages.

[20] Augustine Samba, (1998), WorldCom Service Management System (SMS) K460 Conversion. Lucent Technologies, November 4, 1998, 18 pages.

[21] Augustine Samba, (1998) Monitoring the Service Management System to the Service Control Point TCP/IP path. Lucent Technologies. June 22, 1998, 13 pages.

[22] Augustine Samba, (1998) The Service Management Systems Interface Specifications for Authentication Center (AC) Mobile Subscribers Provisioning in Wireless Intelligent Networks. Lucent Technologies, March 30, 1998, 14 pages.

[23] Augustine Samba, (1998) SMS Download of Local Number Portability data to Appropriate Network Elements. Lucent Technologies, March 9, 1998, 7 pages.

[24] *Augustine Samba, (*1997) *The Service Management Systems Requirements for "SendText" Operations*. Lucent Technologies, April 7, 1997, 19 pages.

[25] Augustine Samba, (1997) Changing Mobile Identification Number (MIN) Requirements. Lucent Technologies, February 26, 1998, 13 pages.

[26] *Augustine Samba, (*1996) The Lucent SMS Software Architecture for Local Number Portability. Lucent Technologies, December 12, 1996, 25 pages.

[27] Augustine Samba, (1995) Network Routing Controlled by a Management Node. AT&T Bell Labs, February 24, 1995, 25 pages.

[28] A. Samba, K. Teutsch (1995). The Automatic Reroute Control (ARC) System Architecture, May 12, 1995

[29] *Augustine Samba, (*1994) *The Total Network Management (TNM) System - Electronic Switching System (4ESS/1B™) Interface Capability Test Plan*. AT&T Bell Labs, June 9, 1994, 44 pages.

[30] Augustine Samba (1991), Systems Architecture for the Link Fault Sectionalization feature, Switching Division, AT&T Bell Labs, October 1991

[31] Augustine Samba, (1989) *Telecommunications Traffic Simulations and Modeling of the Bangkok Metropolitan Network and Thailand Toll Network*
AT&T Bell Labs October 1989, 290 pages.

[32] *Augustine Samba, (*1989) *Systems Description for Enhanced Trunk Requirements for Inter-exchange Model (ETRIM) System***.** AT&T Bell Labs, January 1989, 57 pages.

CONFERENCE PRESENTATIONS

[1] Augustine Samba, Irena Bojanova,"Analysis of Cloud Computing Delivery Architecture Models", 25th International Conference on Advanced Information Networking and Applications (AINA), Bio and Intelligent Computing (BICom 2011) track. March 22-25, 2011 Singapore.

[2] Augustine Samba, Irena Bojanova ,"Cloud with a Chance of Thunder", New Learning Technologies 2011 Conference; Society for Advanced Learning Technology (SALT), Orlando, FL. February 23 -25, 2011.

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[3] Augustine Samba, "Apparatus and Method for Real-Time Multimedia Network Traffic Management and Control in Wireless Networks", Verizon Wireless Communications, October 29, 2010

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RESEARCH PROPOSALS DEVELOPED

- Inter-Operable benefits Analysis Management (IBAM) System; I. Richmond Nettey, PI & Augustine Samba, Co-PI; FAA 00000670; ($478,825.00) 12/23/10.

- A Multi-Use Cyber Sharable Test Bed for Experiments in Motion Networking, Aviation Computing & Systems, and Aerial Remote Sensing; Javed Khan, PI et. al, Augustine Samba, Co-PI.. ($3,439,076.00); 8/3/09

NETWORK MANAGEMENT SYSTEMS (NMS) LAB

The NMS lab provides students with hands-on experience of FCAPS operations at a NOC. The NMS lab also facilitates ongoing research work on network management and design for Software Defined Networks

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS

- Institute of Electrical and Electronic Engineering (IEEE)
- Society for Modeling and Simulations, International
- Network Management Development Group (ITU Task Force)
- Federal Communications Commission (FCC) Sub-committee for defining Number Pooling Standards (1998)
- Federal Communications Commission Sub-committee for defining Local Number Portability Standards (1998)