

ABAYOMI AJOFOYINBO, Ph.D., P.E.

ABAYOMI AJOFOYINBO, Ph.D., P.E.

Department of Engineering (Electrical & Computer)
Texas Southern University
3100 Cleburne Street, Houston, Texas 77004
Email: abayomi.ajofoyinbo@tsu.edu; Tel: 713-313-7988

PROFESSIONAL LICENCE.

Professional Engineer (P.E.).

 Texas Board of Professional Engineers

EDUCATION

Postdoctoral Research Fellow.

NSF CREST Centre for research on complex networks
Texas Southern University, Houston, Texas. (September 2013 – August 2014).

Ph.D., Systems Engineering – Concentration: Electrical and Electronics System.

University of Lagos, Nigeria, (2008).

Ph.D. Dissertation: Representation and encoding of fuzziness in engineering systems: The case of embedded Fuzzy controllers

M.S., Engineering Analysis.

University of Lagos, Nigeria, (1998).

Thesis: Design and development of NeuroFuzzy electronic controller for monitoring flow parameters in metering stations.

B.S., Computer Science/Computer Engineering.

University of Ibadan, Nigeria, (1990).

Additional (Education)

M.S., Economics.

University of Lagos, Nigeria, (1999).

Thesis: Economic implications of natural gas flaring on the Nigerian economy using econometrics models

Postgraduate Diploma (PGD), Economics.

University of Lagos, Nigeria, (1996).

PROFESSIONAL DEVELOPMENT/TRAINING

SN	Courses	Trainer	Country
1	High voltage substations energy systems	IEEE	USA
2	Bringing power and automation together for a safe, reliable, and secure design	IEEE	USA
3	Power quality and harmonic mitigation solutions	IEEE	USA
4	Differential protection applied to motors & transformers	IEEE	USA
5	Instrument Transformers	IEEE	USA
6	Power System Protection, Communications & Asset Management	IEEE	USA

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7	Electromagnetic Compatibility & Electromagnetic Interference	IEEE	USA
8	ABET - Fundamentals of Program Assessment	ABET	USA
9	Energy Demand and Supply Projections for Nigeria	Energy Commission	Nigeria
10	Entrust Training & Certification (Entrust Identity Guard)	Entrust	UK
11	Robust Design by Reliability, Fiability and Fatigue	CADLM	France
12	Riverbed Technology Technical Training (Bandwidth optimization)	Riverbed	UK
13	SUN Java Enterprise Systems (JES) Identity Management	Sun Microsystems	Czech Republic

EMPLOYMENT HISTORY TO DATE

Name of Employer	Capacity and/or type of work	Period
Texas Southern University	Assistant Professor (visiting)	Sept. 2014 – to date
Texas Southern University	Postdoctoral Research Fellow	Sept. 2013 – Aug. 2014
University of Lagos	Senior Lecturer	Oct. 2012 – Aug. 2013
University of Lagos	Lecturer I	Nov. 2008 – Oct. 2012
University of Lagos	Lecturer II	July 2004 – Nov. 2008
ROE Limited	Manager, Technology Consulting	Apr. 2001 – Jun. 2004
Standard Petrochemical Industries Limited	Manager/Project Coordinator	Sept. 1999 – Mar. 2001
Standard Petrochemical Industries Limited	Head, Communication & Information Systems Department	Jul. 1995 – Nov. 1996
Shell Petroleum Development Company Ltd	Systems Engineer (Maintenance/Production Dept.)	Oct. 1991 – Jun. 1995
Shell Petroleum Development Company Ltd	National Youth Service (Information & Communication Services Dept.)	Oct. 1990 – Sept. 1991

SPECIALISATION / RESEARCH AREAS

- (a) Electrical power transmission and distribution system
- (b) Embedded systems & control
- (c) Wireless communications & wireless sensor networks

PUBLICATIONS

- 1) Ajofoyinbo A. (2017). “Detection of High-Impedance Line-to-Ground Fault in Overhead Power Distribution System using Wavelet and Fuzzy Logic”. *International Journal of Engineering Research and Innovation (IJERI)*, vol.9, no. 2, pp. 5-17.
- 2) Ajofoyinbo A. and Sahin I. (2017). “Electrical Power Grid Optimization using Semi-Markov Decision Process (SMDP)”. *Institute for Operations Research and the Management Sciences (INFORMS) Conference - TC71 Applications of Global Optimization*, Houston, Texas, USA, October 22-25, 2017.
- 3) Ajofoyinbo A.M. and Olowokere D.O. (2015). “Markov decision process –based structural health monitoring model for civil infrastructure systems using energy-efficient wireless smart sensor networks” . *International Journal of Modern Engineering*, Spring/Summer 2015, vol. 15, no. 2, pp. 45-56.

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- 4) Ajofoyinbo A.M and Olowokere D.O. (2015). “Fuzzy control model for structural health monitoring of civil infrastructure systems”. *Journal of Control Science and Engineering*, vol. 3, no. 1, pp. 9-20.
- 5) David O. Olowokere and Abayomi M. Ajofoyinbo (2015). “Energy-efficient MAC Protocol using directional antennas in IEEE 802.11-based wireless sensor networks”, *International Journal of Electronics Communication and Computer Engineering*, 2015, vol. 6, no. 5, pp. 548-557.
- 6) Ajofoyinbo A.M. and Li W.W. (2015). “Directional antennas MAC protocol for energy-efficient wireless sensor networks with mobile sink”. *International Journal of Communications Systems*, vol. 30, issue 2. DOI.10.1002/dac.3007.
- 7) Olowokere D.O. and Ajofoyinbo A.M. (2015). “A framework for integrating intelligent sensors measurement data into engineering education”. 122nd Annual Conference of the *American Society for Engineering Education (ASEE)*, Seattle WA, June 14-17, 2015.
- 8) Ajofoyinbo A. and Olowokere D.O. (2014). “Health monitoring and control of civil infrastructures using wireless smart sensor networks”. *Bulletin of Electrical Engineering and Informatics*, vol. 3, issue 3, pp. 201-212.
- 9) Ajofoyinbo A.M. and Olowokere D.O. (2014). “Discounted semi-Markov decision process based structural health monitoring model for civil infrastructure systems using wireless smart sensor networks”. *European Journal of Scientific Research*, vol. 121, issue 4, pp. 347-362.
- 10) Ajofoyinbo A.M. (2013). “On Ultra Extended Cyclic Prefix in Orthogonal Frequency Division Multiplexing (OFDM) Systems: The Case of LTE Downlink”. *Journal of Communications and Networks*; vol. 5; pp. 280 - 287.
- 11) Ajofoyinbo A.M. (2013). “Energy efficient Packet-Duration-Value based MAC Protocol for wireless sensor networks”. *Journal of Wireless Sensor Networks*; vol. 5, no. 10, pp. 194 – 202.
- 12) Ajofoyinbo A.M. and Orolu K. (2012). “Optimal allocation of radio resource in Cellular LTE downlink based on truncated dynamic programming under uncertainty”. *Journal of Communications, Network and Systems Sciences*; vol. 5, no. 2, pp. 111-120.
- 13) Olunloyo V.O.S., Ajofoyinbo A.M. and Oye Ibidapo-Obe (2011). “On Development of Fuzzy Controller: The case of Gaussian and triangular membership functions”. *Journal of Signal and Information Processing*; vol. 2, pp. 257-265.
- 14) Ajofoyinbo A.M. and Orolu K. (2011). “An adaptive multi-user dynamic scheduling technique for multi-class traffic in Long-Term Evolution (LTE) cellular downlink”. *Proceedings of the International Conference on Innovations in Engineering and Technology (IET 2011)*, University of Lagos, Nigeria. August 8-10, 2011; pp. 229-245.
- 15) Ajofoyinbo A. M. and Orolu K. (2011). “A dynamic programming based technique for optimal allocation of radio resource in multi-user cellular Long-Term Evolution (LTE) downlink”. *Proceedings of the 10th World Scientific and Engineering Academy and Society (WSEAS) International Conference on Telecommunications and Informatics (TELE-INFO 2011)*, Lanzarote, Canary Islands, Spain, May 27-29, 2011, pp. 107-113.
- 16) Olunloyo V.O.S. and Ajofoyinbo A.M. (2010). “On the systematic computation of union and intersection of triangular Fuzzy sets”. *European Journal of Scientific Research*; vol. 41, no. 1, pp. 135 – 149.
- 17) Olunloyo V.O.S. and Ajofoyinbo A.M. (2010). “A new admission control algorithm for performance improvement in General Packet Radio Service (GPRS) network”. *European Journal of Scientific Research*; vol. 41, No. 1, pp. 122-134.

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- 18) Olunloyo V.O.S and Ajofoyinbo A.M. (2010). “Factors influencing reliability of interconnected industrial systems: The case of irregular electrical power supply”. *University of Lagos Journal of Engineering Research*; vol. 15, no. 1, pp. 1-10.
- 19) Olunloyo V.O.S and Ajofoyinbo A.M. (2009). “A model for real time leakage detection in pipelines: A case of an integrated Global Positioning System (GPS) Receiver”. *Proceedings of the 3rd North Atlantic University Union (NAUN) and World Scientific and Engineering Academy and Society (WSEAS) International Conference on Circuits, Systems and Signals (CSS’09)*, Athens, Greece, December 29-31, 2009. pp. 216-221.
- 20) Olunloyo V.O.S. and Ajofoyinbo A.M. (2009). “Performance improvement in General Packet Radio Service (GPRS) network based on priority queue oriented admission control”. *Proceedings of the 8th World Scientific and Engineering Academy and Society (WSEAS) International Conference on Telecommunications and Informatics (TELE-INFO ’09)*, Istanbul, Turkey, May 30 – June 1, 2009. pp. 179-186.
- 21) Olunloyo V.O.S., Ajofoyinbo A.M. and Ibidapo-Obe O. (2009). “Design and implementation of embedded Fuzzy controllers based on Fourier computation of membership functions”. *Proceedings of the 8th World Scientific and Engineering Academy and Society (WSEAS) International Conference on Electronics, Hardware, Wireless and Optical Communications*, University of Cambridge, U.K.; pp. 133-142. (Best Paper of the Conference).
- 22) Olunloyo V.O.S., Ajofoyinbo A.M. and Badiru A. B. (2008). “An alternate approach for computing the union and intersection of Fuzzy sets: A basis for design of robust Fuzzy controllers”; *Proceedings of the 7th World Scientific and Engineering Academy and Society (WSEAS) International Conference on Artificial Intelligence, Knowledge Engineering and Data Bases (AIKED’ 08)*, University of Cambridge, U.K.; pp. 301-308. (Best Student Paper).
- 23) Olunloyo V.O.S., Ajofoyinbo A.M. and Femi Agboola (2007). “Irregular electrical power supply as a major risk factor in an emerging industrial economy”. *Proceedings of the 7th International Conference on Power Systems Operation and Planning (7th ICPSOP)*; January 22-25, 2007. Cape Town, South Africa. pp. 203-212.
- 24) Olunloyo V.O.S. and Ajofoyinbo A. M. (2007). “Intelligent processing in cultural context: The African perspective”. *Proceedings of the 6th International Conference on Intelligent Processing and Manufacturing of Materials (IPMM ’07)*, Salerno, Italy. CD-ROM.
- 25) Olunloyo V.O.S. and Ajofoyinbo A.M. (2006). “Fuzzy-stochastic maintenance model: economic health index as a measure of engineering performance”. *Special Issue of the Communication of Dependability and Quality Management: An International Journal*; vol. 9, no. 1, pp. 30-37.
- 26) Olunloyo V.O.S. and Ajofoyinbo A.M. (2005). “A new approach for treating Fuzzy sets’ intersection and union: A basis for design of intelligent machines”. *Proceedings of the 5th International Conference on Intelligent Processing and Manufacturing of Materials (IPMM’05)*. July 19-23, California, USA, July 19-23, 2005. CD-ROM.
- 27) Olunloyo V.O.S and Ajofoyinbo A. M. (2005). “Fuzzy-stochastic maintenance model: A tool for maintenance optimization”. *Proceedings of the International Conference on Stochastic Models in Reliability, Safety, Security and Logistics*. Beer Sheva, Israel, Feb 15-17; pp. 266-271.
- 28) Olunloyo V.O.S., Ajofoyinbo A.M. and Badiru A.B. (2004). “NeuroFuzzy mathematical model for monitoring flow parameters of Natural Gas”. *Applied Mathematics and Computation*; Elsevier Science, vol. 149, pp. 747-770.

ONGOING RESEARCH: High-impedance line-to-ground faults in power transmission and distribution systems, based on asymmetrical fault current.

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DESCRIPTION OF WORK EXPERIENCE

1. **Assistant Professor (visiting):** September 2014 – Present.
Department of Engineering (Electrical & Computer), Texas Southern University (TSU), Houston, Texas.
Major responsibilities: Teaching and research
2. **Electrical Engineer:** July 01 2017 to August 31 2017 (Summer 2017).
BiPOM Electronic, Inc., Missouri City, Texas, USA.
Project: Design circuit, carry out circuit simulation analysis (using Multisim software) and Eagle PCB design software of an Industrial Proximity Detection System (i.e., vibration, temperature, and bearing sensing) for machine protection.
Project Status: Completed.
3. **Postdoctoral Fellow:** September 2013 – August 2014.
NSF-CREST Centre for Research on Complex Networks, Texas Southern University, Houston
Major responsibilities: Research on wireless communications and wireless sensor networks.
4. **Senior Lecturer:** October 2012 – August 2013
Department of Systems Engineering, Faculty of Engineering, University of Lagos, Nigeria.
Major responsibilities: Teaching, research, and students project supervision (undergraduate & graduate); and also private sector engagements.

Private sector activities (through CBC EMEA Group, Abajo Engineering Systems Ltd, and SATCO Consultancy & Energy Services Ltd): engineering support services, feasibility analysis (technical & economic) of electrical power generation system, design & implementation of wired/wireless video surveillance solutions, design & implementation of disaster recovery & business continuity solutions (using NetApp, IBM, Sun Microsystem, Riverbed bandwidth optimization, and Entrust identity guard hardware & software) and management of information & communication technology (ICT) projects.

5. **Lecturer I:** November 2008 – October 2012.
Department of Systems Engineering, Faculty of Engineering, University of Lagos, Nigeria.
Major responsibilities: Teaching, research, and students project supervision (undergraduate & graduate); and also private sector engagements

Private sector activities (through CBC EMEA Group, Abajo Engineering Systems Ltd, and SATCO Consultancy & Energy Services Ltd): engineering support services, feasibility analysis (technical & economic) of electrical power generation system, design & implementation of wired/wireless video surveillance solutions, design & implementation of disaster recovery & business continuity solutions (using NetApp, IBM, Sun Microsystem, Riverbed bandwidth optimization, and Entrust identity guard hardware & software) and management of information & communication technology projects.

6. **Lecturer II:** July 2004 – November 2008.
Department of Systems Engineering, Faculty of Engineering, University of Lagos, Nigeria.
Major responsibilities: Teaching and research.

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- 7. Manager, Technology Consulting Group:** April 2001 – June 2004
ROE Limited, Nigeria.

Major responsibilities

- Design and implementation of information & communication technology (ICT) enterprise solutions for clients in oil & gas, banking and industrial sectors in Nigeria.
- Design and implementation of maintenance & material management systems for refining and petrochemical companies in Nigeria.
- Feasibility analysis and project management.

- 8. Manager/Project Coordinator:** September 1999 – March 2001
Standard Petrochemical Industries Limited (SPIL), Lagos, Nigeria
[Joint Venture (JV) Operator for Nigerian National Petroleum Corporation (Nigeria), Ferrostaal AG (Germany), Lurgi AG (Germany), ABB Lummus (USA) and SPIL (Nigeria)]
JV Project: Integrated Methanol/MTBE (Methanol Plant [Phase I] -- \$330 million project)

Major responsibilities

- Methanol integrated project's feasibility analysis (economic & technical), and project management.
- Negotiation and discussion of various key aspects of the Methanol project (phase I), including the feedstock (natural gas) supply contract as well as the engineering, procurement and construction (EPC) contract.
- Technical input into the preparation of feasibility reports to support the company's application to both local and international financial institutions (including African Development Bank/PSDU, World Bank/IFC, etc.) for provision of project financing for the methanol project.
- Member of the Management Team.

- 9. Head, Communications & Information System Department:** July 1995 - Nov. 1996
Standard Petrochemical Industries Limited (SPIL), Lagos, Nigeria
[Joint Venture (JV) Operator for Nigerian National Petroleum Corporation (Nigeria), Ferrostaal AG (Germany), Lurgi AG (Germany), ABB Lummus (USA) and SPIL (Nigeria)]
JV Project: Integrated Methanol/MTBE

- Manages installation, configuration and operations of wired and wireless communication systems as to ensure continuous availability to support activities at the Head Office in Lagos and the office in Port-Harcourt.
- Ensures reliable and secured wired and wireless communications in the offices at Lagos and Port-Harcourt.
- Manages the installation, configuration and operation of information systems across different hardware and software platforms; and ensure operational availability of local and wide area networks.
- Prepare, defend and manage departmental budget.

- 10. Systems Engineer:** October 1991 – June 1995
Maintenance/Production Department
Shell Petroleum Development Company Limited (SPDC), Warri, Bendel State, Nigeria

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Major responsibilities

- Installation/configuration and support of instrumentation systems for monitoring oil & gas production facilities.
- Installation/configuration and support of computerized maintenance management systems.
- Design, develop and implement monitoring software for forecasting equipment run-hours in the western division of Shell Nigeria, Warri, Bendel (now Delta) State.

11. National Youth Service: October 1990 – September 1991

Information & Communication Services Department
Shell Petroleum Development Company Limited (SPDC), Western Division
Warri, Bendel State (now Delta State), Nigeria

Major responsibilities

- Users support services on the local area networks (LANs), metropolitan area networks (MAN), and wide area networks (WAN).
- Staff training (software, hardware, and networks)

SOFTWARE ENGINEERING

I have expertise in the following programming languages and engineering application software:

- 1) C programming language
- 2) C++ Programming Language
- 3) Java programming language
- 4) C-Sharp Programming Language
- 5) Assembly programming language
- 6) PLC Ladder Language / Statement List
- 7) MATLAB and Simulink software
- 8) Mathsoft MathCAD software
- 9) NI Multisim circuit design and simulation software
- 10) Proteus PCB circuit design and simulation software
- 11) Eagle PCB Circuit design and simulation software

AFFILIATION WITH PROFESSIONAL BODIES

- 1) Institute of Electrical and Electronic Engineers, USA.
- 2) The Nigerian Society of Engineers
- 3) Computer Professional Registration Council of Nigeria
- 4) The Nigerian Economic Society

REVIEWER

1. EURASIP Journal on Wireless Communications and Networking
2. International Journal of Communications, Network and System Sciences
3. Journal of Communications and Network