

CURRICULUM VITAE

1. PERSONAL DATA

Name : **Dr. Ferdinand Chirure Nyongesa, PhD**

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Date of Birth : 1st August, 1958; Male Kenyan

2. ACADEMIC AND PROFESSIONAL RECORDS

Doctor of Technology (PhD) in Electrical Engineering earned at Tshwane University of Technology (TUT) in the Faculty of Engineering and the Built Environment, France/South Africa Institute of Technology (F'SATI)/Dept of Electrical Engineering, Pretoria, South Africa. Niche area: *Wireless communication Technology, Microelectronics and Digital Signal Processing*. Research topic: Vehicular Ad Hoc Networks (VANETs). Research title: ***Estimation and Compensation of Doppler Shifts in Spatial Multiplexed Vehicular Ad Hoc Networks***.

Investigated the time complexity performance of the received signal detection in high speed spatial multiplexed Vehicular adhoc Networks (VANETs) by estimating and compensating Doppler shift.

The most significant contribution of the research was the finding that the computational complexity in the Basis Expansion Modelling (BEM)-compensated channel is in the linear order of the FFT size while the computational complexity is in the quadratic order of the FFT size in the uncompensated channel. This result leads to savings in processing time and memory space in practical systems.

As a result of the novelty of this research, the following articles have been published in peer-reviewed journals and one reviewed conference proceedings which I also presented.

1. Ferdinand C. Nyongesa and Thomas O. Olwal, “*Doppler Shift Estimation and Compensation in High Speed MIMO-OFDM VANETs*”, Journal of Computing and Information Technology (CIT), Vol.26, No.3, September 2018, 141-156, doi: 20532/cit.2018.1003823.
2. Ferdinand Nyongesa, “*Analytical Estimation of Doppler Shift in Vehicular Ad Hoc Networks for Enhanced Detection in Accident Avoidance Campaigns*”, International

- Journal of Innovative Science, Engineering & Technology (IJSET), Vol.5, Issue 3, 2018. ISSN (Online) 2348 – 7968.
3. Ferdinand Nyongesa, “*Estimation of Doppler Shift by Matrix Inversion for Enhanced Short Text Messaging in High Speed Spatial Multiplexed Vehicular Ad Hoc Networks*”, International Journal of Innovative Science and Research Technology (IJISRT), Vol.3 Issue 3, 2018. ISSN No. 2456 – 2165.
 4. Ferdinand Nyongesa, “*Diversity Evaluation for Enhanced Detection in Multiple Input Multiple Output Vehicle - to - Vehicle Communication*”, International Journal of Engineering and Computer Science (IJECS), Vol.5, Issue 4, 2018. ISSN No. 2319 – 7242.
 5. Ferdinand Nyongesa, “*Enhanced Power Effect on Detection Performance in High Mobility Vehicular Networks*”, International Journal of Innovative Science and Research Technology (IJISRT), Vol.3, Issue 4. 2456 - 2165.
 6. F. Nyongesa, K. Djouani, T. Olwal, and Y. Hamam, “*Doppler Shift Compensation Schemes in VANETs*”. Mobile Information Systems 2015, Vol.2015, 11 pages, Article ID 438159, <http://dx.doi.org/10.1155/2015/438159>.
 7. Ferdinand Nyongesa, Karim Djouani, Thomas Olwal and Alex Hamam, “*Channel Estimation in High Mobility MIMO-OFDM VANETs*”. Computer Science Applications 2015, Vol.2, No.4, 7 pages, pp.127-133, www.ethanpublishing.com
 8. Nyongesa, F., Djouani, K., Hamam, Y., “*Capacity Performance Analysis in MIMO Vehicular Networks*”. SATNAC 2014 Conference on Ubiquitous Broadband, Port Elizabeth, South Africa, 2014, pp.283.
 9. 1st International Research Congress on *Knowledge Generation and Dissemination in Africa*, MMUST, 3-6th December, 2017, Kisumu, Kenya (in attendance).
 10. 24th Institution of Engineers of Kenya (IEK) *International Conference*, 10-12th May, 2017, Nairobi, Kenya (in attendance).

Attended TUT Research methodology Workshop, Pretoria, South Africa (2012); Corporate Management and Public Sector Financing, National Council of Occupational Safety and Health, Naivasha (2010); KEBS ISO 9001:2000 Seminar for Quality Management systems, MMUST, Kakamega (2006); Fire Fighting and Emergence Response training at Kenya Airports Authority Training School, Nairobi (1994); Basic Instructions Technology at East Africa School of Aviation, Nairobi (1985).

MSc in Communication Engineering – University of Bradford/University of Manchester Institute of Science and Technology (1990); **Graduate Diploma in Electronic and Communications Engineering** – University of Bradford (UK) (1988); **BSc (Physics)** – University of Nairobi (1983); East Africa Certificate of Education (EACE) and East Africa Advanced Certificate of Education (EAACE) – Mangu High School, Thika (1976 and 1978, respectively); Certificate of primary education (CPE) – Kibabii RC Primary School, Bungoma County (1972).

3. WORK EXPERIENCE

Sept 2004 – Date: Masinde Muliro University of Science and Technology (MMUST).

- Lecturer and founder Chairman of Dept of Electrical and Communications Engineering (2004 - 2008). He laid a strong foundation upon which the Department thrives today.

- Member of University Senate. Served on Senate ad hoc committees on examination irregularities, University re-branding and establishment of satellite campuses.
- Chaired curriculum review process that transformed BTech which was inherited from Moi University to BSc Engineering to conform to current academic and professional trends (June 2007).
- Member of the Construction Committee for design and supervision of university infrastructure.
- Designed and supervised campus-wide installation and commissioning of a digital PABX (voice intercom system) (2006) and participated in the establishment of broadcast radio station, MMUST FM 93.1 MHz (2009).
- Chaired and co-ordinated a new postgraduate curriculum design committee for a double-track Master of Science (MSc) programme in Electrical Engineering (2019) which is currently running.
- Currently serves as the Departmental Chairperson of the Postgraduate Studies Committee in Electrical and Communications Engineering.

Jan-May 2019: Team member of Photo Voltaic – Solar Energy – off-grid project design for Masinde Muliro University jointly with Cleaner Future Oy (Technology providers).

2009 – 2012: National Council for Occupation Safety and Health (NACOSH), an advisory agency in the ministry of Labour.

-Board Member and Vice Chairman for a period of three years.

-Transformation of policy guidelines to create a sustainable NACOSH regime.

Jun 2006: ISO 9001:2000 Attended implementation training focussed on the standard's eight principle: Customer-focused organization; Leadership; Involvement of people; Process approach; Systemic approach; Continual improvement; Factual approach to decision making; and Mutually beneficial supplier relationships.

Jan – Jun 2004: National Communication Secretariat (NCS), an advisory agency in the Ministry of Transport and Communications.

-Resource Expert in charge of Research Co-ordination during drafting of the National Information and Communication Technology (ICT) Policy Recommendations:

- Review of the existing information processing capacity of the Secretariat;

-Evaluation of national ICT installed capacity in the communication sector;

-Development of a framework for carrying out research in various ICT sectors;

-Development of an on-line database for the Communications Sector;

-Development of mechanisms for sharing information between the Secretariat and stakeholders in the industry;

-Finalization of the national electronic communication and electronic signature policy and legislation;

-Participation in the finalization of the national ICT policy.

1996 – 2003: Kenyatta University: Assistant Lecturer. Chaired the task force for drafting and commissioning of an undergraduate course: **BSc (Telecommunications and Information Technology).**

1993 – 1996: Kenya Pipeline Company (KPC), a white petroleum products transporter. Engineer I (Tele-control and Instrumentation) in charge of Western Kenya Pipeline Extension communication system with operations based on Supervisory Control and Data Acquisition (SCADA) system for product accounting.

1990 – 1993: Jomo Kenyatta University of Agriculture and Technology (JKUAT). Assistant Lecturer, Dept of Electrical and Electronics Engineering.

1983 – 1990: Directorate of Civil Aviation (DCA). Assistant Engineer (Electronics) for Air Navigation Services (ANS) based on the standards of International Civil Aviation Organization (ICAO).

4. PROFESSIONAL MEMBERSHIP

Associate member at the Institute of Electrical and Electronic Engineering (IEEE), Member of the Institute of Engineering Technologists and Technicians (IET), Graduate Engineer (applied) at Engineers Board of Kenya, and Communication Authority (CA) of Kenya as Telecommunication Technical Expert.

5. REFEREES

1. Prof. James Kulubi Dept of Electrical & Comm. Eng Masinde Muliro University Cellphone: 0722 770587 Email: jkulubi@yahoo.co.uk	2. Prof. Cyrus Wekesa University of Eldoret, School of Engineering Cellphone: 0111 794665 Email: Cyrus.wekesa@gmail.com
3. Prof. Dominic Konditi Dept. of Electrical Engineering – TU-K Cellphone: 0725 140795 Email: onyango_d@yahoo.co.uk	