PAUL ABUONJI ANYANGO (PhD)

BSc (Computer Science), MBA (Strategic Mgt.), MSc. (IT Security &Audit), PhD (IT Security &Audit)

1. PERSONAL INFORMATION

Postal address: P.O. Box 6330, Postal code: 40103 Kisumu, Kenya
Phone: +254724896916, +254788385687
E-mail: pabuonji@yahoo.com / abuonjipaul@gmail.com
Marital status: Married
Nationality: Kenyan

2. EDUCATION AND PROFESSIONAL DEVELOPMENT

Postgraduate

I. **PhD in Information Technology Security and Audit** (2019). Thesis: *"A Stratified Cyber Security Vigilance Model for a Corporate Information Technology Infrastructure."*
Jaramogi Oginga Odinga University of Science and Technology (JOOUST), Kenya.

II. **MSc in Information Technology Security and Audit** (2014). Project: *"Implementing a Secure Messaging Solution using Enhanced Zimbra Collaboration Suite."*
Jaramogi Oginga Odinga University of Science and Technology (JOOUST), Kenya.

III. **Master of Business Administration –Strategic Management** (2011). Project: *"Experiential Computing as a Strategic Approach to Enhancing Efficiency in Learning Institutions in Kenya"*
Maseno University, Kenya.

Undergraduate

IV. **BSc. Computer Science** 2nd Class Honors- Upper Division (2003 - 2007)
Masinde Muliro University of Science and Technology (MMUST), Kenya

Professional Trainings

i. Information Security Management System (ISMS) implementation training by KEBS
ii. Linux server administration using CentOS 5 and Ubuntu (2011)
-Configuring DNS server, email, web and FTP server, LDAP and firewall
iii. Microsoft Server 2003/ 2008 administration (2011)
- Configuring DNS, Active directory, email, web, FTP
iv. Use of MIS in Monitoring and Evaluation (2014)
-Using a web based MIS tool in Monitoring and Evaluation of Financial Systems

High School

Sawagongo Boys High School (1998-2001) – KCSE Mean Grade A- (Minus)

3. BRIEF RESUME

Paul Abuonji is currently a Lecturer and Associate Director of ICT at Jaramogi Oginga Odinga University of Science and Technology. He holds a PhD in Information Technology Security and Audit form JOOUST; a Master of Science in Information Technology Security and Audit from JOOUST, a Master of Business Administration- specializing in Strategic Management, from Maseno University and Bachelor of Science in Computer Science from Masinde Muliro University of Science and Technology. He is also the Coordinator for ICT Security, where he designs, implements, monitors and audits ICT security systems of the university. Besides, he is the Lead Champion for ISO 27001:2013- ISMS certification standard in the University.

Previously Paul was a Lecturer at Great Lakes University of Kisumu where he was also the Head of Department of Information Technology and ICT Manager. He successfully developed teaching curricula for BSc. Information Technology, Diploma in Information Technology and Certificate in Information Technology and effectively established the department of IT in Great Lakes University which he headed for about four years before resigning to take up a job at JOOUST.

Latest Achievement in Technology: Developed and implemented a novel ICT security model called "Stratified Cyber Security Vigilance (SCSV) Model", effectively tested it and successfully implemented it to secure the University's ICT infrastructure.

4. WORK EXPERIENCE

4.1 JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY-
Employer from November 2013 – to date

4.1.1 *TEACHING EXPERIENCE*

A. Position: Lecturer, *School of Informatics and Innovative Systems:* *2019 – to date*

i. Teaches undergraduate and postgraduate students
ii. Supervises Masters and PhD students
iii. Conducts research in areas of: Cyber security, Artificial Intelligence; Internet of Things; and Big data analytics.

B. Position: *Tutorial Fellow, School of Informatics and Innovative Systems:* *November 2013 – to 2019*

i) Taught many courses at undergraduate and postgraduate levels

Undergraduate Courses Taught include:

1. Systems Analysis and Design
2. Computer Forensics I
3. Computer Forensics II
4. Distributed Systems
5. Introduction to Computer Systems Outline

6. Emerging Threats, Attacks and Defenses
7. Systems Programming
8. Visual Basic programming
9. Web Design and Publishing
10. Fundamentals of ICT
11. Computer Security, Risk Management and Control
12. Operating Systems Security
13. Advanced Operating Systems
14. PC Security and Privacy
15. Information Security Policy and Compliance
16. Operating Systems Security
17. Computer Systems Architectures

Masters Courses Taught include:

1. Network and System Security
2. Security Policies, Standards, and Compliance Strategies
3. Firewall Fundamentals
4. Advanced Information Systems Audit and Control

PhD Course Taught

Organizations Corporate Computer and Network Security

ii) Students Supervision

Supervised many undergraduate students while doing final year projects. Some of the projects successfully supervises include:

Year 2019

1. Muriuki Dennis Kariuki, *"Peer-to-Peer Connection Security"*, Department of Computer Science and Software Enginering, Jaramogi Oginga Odinga University of Science and Technology.
2. Nganga Hosea Mlefu, *"Spam Filter Tool Technique"*, Department of Computer Science and Software Enginering, Jaramogi Oginga Odinga University of Science and Technology.
3. Ndugu David Muhia, *"User Authentication System"*, Department of Computer Science and Software Enginering, Jaramogi Oginga Odinga University of Science and Technology.
4. Jepkosgei Enostine, *"6K Computer Network Security Application"*, Department of Computer Science and Software Enginering, Jaramogi Oginga Odinga University of Science and Technology.
5. Nyabwengi Samuel Osoro and Musungu Bruce Bunyasi, *"Algorithm for Solving Network Bandwidth Denial of Service Attack (DoS)"*, Department of Computer Science and Software Enginering, Jaramogi Oginga Odinga University of Science and Technology.

Year 2018

1. Gathogo Nganga David and Njoroge R. Elias, *"Cache Poisoning Attack & Mitigation"*, Department of Computer Science and Software Enginering, Jaramogi Oginga Odinga University of Science and Technology.

2. Ndinda Eric Mutua, "*IS Security thro Cryptography and Steganography*", Department of Computer Science and Software Enginering, Jaramogi Oginga Odinga University of Science and Technology.
3. Gichure Erick Osinyo and Yiembe Benjamin Ondiege, "ecure Cash Transfer Mobile Application", Department of Computer Science and Software Enginering, Jaramogi Oginga Odinga University of Science and Technology.
4. Mary Nancy Gakii and Apiyo Paul Nyamohanga, *"Implementing Systems Neighbor Integrity Binding"*, Department of Computer Science and Software Enginering, Jaramogi Oginga Odinga University of Science and Technology.

Year 2017

1. Mwenda Titus and Kibet Mutai Titus, "*Network Security through Network Design"*, Department of Computer Science and Software Enginering, Jaramogi Oginga Odinga University of Science and Technology.
2. Lagat Lilian Jepkorir and Okuku Akoth Emmaculate, "Tapjacking techniques for Anroid App*"*, Department of Computer Science and Software Enginering, Jaramogi Oginga Odinga University of Science and Technology.
3. Wairimu David Njonge, *"Curbing Impersonation in Windows Network"*, Department of Computer Science and Software Enginering, Jaramogi Oginga Odinga University of Science and Technology.

Year 2016

1. Angudi Janet Julia M., *"Enhancing network security in Laboratory environment"*, Department of Computer Science and Software Enginering, Jaramogi Oginga Odinga University of Science and Technology.
2. Ray Opiyo Ochieg, *"Cybercrime trends in Kenyan Organizations"*, Department of Computer Science and Software Enginering, Jaramogi Oginga Odinga University of Science and Technology.
3. Fridah Muthio and Kimutai Victor, *"Bandwidth Management in small organisations"*, Department of Computer Science and Software Enginering, Jaramogi Oginga Odinga University of Science and Technology.
4. Kamita Paul Kinuthia and Odhiambo O Rodgers, *"**20** Syslog Server"*, Department of Computer Science and Software Enginering, Jaramogi Oginga Odinga University of Science and Technology.

iii) Publications in Refereed Journals

1. **Abuonji, P**., Rodrigues A. J. & Raburu, O. G (2018); A Stratified Cyber Security Vigilance Model: An Augmentation of Risk-Based Information System Security; *Transactions on Networks and Communications; Society for Science and Education, UK; Vol. 6, Issue 5, pp. 16-29, ISSN: 2054 -7420*
2. **Abuonji, P.**, Rodrigues A. J. & Raburu, O. G (2018); Load Balanced Network: Design, Implementation and Legal Consideration Issues; *Transactions on Networks and Communications; Society for Science and Education, UK; Vol. 6, Issue 5, pp. 41-58, ISSN: 2054 -7420*
3. **Abuonji, P**. (2012). Experiential Computing: A Strategic approach to Enhancing Efficiency in Universities. Lambert publishers, Saarbrücken, Germany, 60 pages.

iv) Papers Submitted and are Being Reviewed

1. Gitau, J., Rodrigues, Anthony & **Abuonji, P**. (2019), Proto-type Intelligent Log-based Intrusion Detection System. Submitted to: *International Journal of Intelligent Systems and Applications (IJISA).*
2. Cheruiyot, N., Muriga, N., Rodrigues, A. & **Abuonji, P**. (2019), Enhancing Password Authentication using Keystroke Dynamics. Submitted to: *International Journal of Computer Networks and Information Security (IJCNIS)*.

v) Papers Currently Under Preparation

1. Discovery and Diminution of the Variance between Expected or Documented Outsourced Bandwidth Availability and Actual in Corporate Network Infrastructure.
2. Timely and Accurate Detection and Control of Threats and Vulnerabilities as a Precursor for Success in Corporate Information System Security.
3. Adopting Network Vigilance Approach to Discover how Internet Bandwidth is Utilized within the Corporate LAN before procuring more or Less: A Critical Business Decision.
4. Corporate Information System Re-engineering: A systematic Approach guided by Sound System and Environmental Awareness Powered by Vigilance.
5. Exploring Open Source Technologies for Implementing Secure Messaging Server: A Cost-effective Approach to Messaging Solutions.

vi) Conference Participation

Presented the following paper in the 2nd JOOUST International Scientific Conference.

1. Machoka, F., Otieno, F., Liyala, S., Rodrigues, A. & **Abuonji, P**. (2019), *Crowdfunding Mobile Money System*. Conference proceedings, 2nd JOOUST International Scientific Conference.

C. **Position:** ***School Coordinator for JOOUST Kisumu Campus-*** *November 2013 to October 2015*

I served in this capacity until I was appointed JOOUST ICT Security Coordinator in the Main Campus. While in Kisumu Campus, I performed the following duties:

1. I oversaw teaching in the School of Informatics and Innovative Systems in Kisumu Campus
2. Taught various courses in Kisumu campus
3. Ensured that teaching timetable for SIIS was prepared and lecturers adhered to it.

4.1.2 TECHNICAL WORK EXPERIENCE

A. Position: ***Associate Director of ICT: March 2020 – to date***

Tasks Performed

1. Act as the Director of ICT services whenever the Director is away.
2. Coordinate ICT services in the University
3. Spearhead the process of implementation of a new ERP system in the University with- online portals, bank gateways, biometric authentication systems, etc.
4. Coordinate the process of implementation of Digital Assembly plant in the University in partnership with stakeholders.

B. Position: ***Coordinator, ICT Security: October 2015 – to date***

Tasks Performed

1. Reviewed the design of the university LAN and recommend a secure design which was successfully implemented.
2. Implemented and configured a Unified Threat Management (UTM) firewall to protect the university LAN.
3. Implemented the load balancing of Internet bandwidth connectivity to the university thereby ensuring that the Internet availability (uptime) is increased to almost 99 percent at the main campus.
4. Supervised the expansion of WiFi footprint in the main campus by implementing additional wireless access points.
5. Conduct system audits whenever there is need, in order to ascertain sources of breaches and recommend countermeasures. In some cases implement those countermeasures after approval of the said recommendations.
6. Continually monitor the security status of all information systems within the university.
7. Developed and successfully implemented Information Systems Security Awareness course for JOOUST staff in order to improve information system security in the university.
8. Act on behalf of the Director ICT from time to time whenever the substantive Director is away.

C. Position: ***ISO 27001:2013- Information Security Management System (ISMS) Champion***

Tasks Performed

1. Develop the ISMS certification roadmap.
2. Propose a budget for facilitating the planned ISMS activities in each financial year.
3. Spearhead the ISMS certification process in the University.
4. Prepare the assets register for all Information Assets in the University.
5. Briefed top university management in the ISMS certification roadmap as per the requirement of ISMS ISO/IEC 27001:2013 Standard.
6. Organized and facilitated a two day workshop for creating ISMS awareness in the University as per the guidelines of ISMS ISO/IEC 27001:2013 Standard.
7. Organized and facilitated a two day ISMS ISO/IEC 27001:2013 Standard Implementers' training as required by the said Standard.

D. Projects Implemented (Completed and Ongoing)

Acting on behalf of the Director ICT or in my own capacity, I have implemented and /or supervised a number of ICT and related projects in the University.

1. Conducted a security assessment of the Local Area Network of the university and redesigned it to make it more secure. The new design was successfully implemented by ICT team **in 2016**.

   Achievement: A well segmented LAN that is more secure since staff have a separate subnet from that of students.
2. Implementation of Load balanced Internet connectivity to the University. Since the university is far away from the main Internet fiber optic backbone, its Internet connectivity is prone to fluctuation if it relies on only one link.

   Achievement: Load balancing of Internet connectivity using two ISPs has increased the availability of internet in the university's main campus to about 99 percent- **since 2016**.

3. Expansion of the wireless access footprint in the university main campus. I supervised this project on behalf of the Director ICT **in 2016**.
   Achievement: Students are able to access Internet from their hostel rooms, green libraries and other open spaces in the main campus thereby reducing pressure on the library and computer laboratories.

4. Driving the agenda for ISMS ISO/IEC 27001:2013 Standard Certification. This is an ongoing project with university-wide scope. Started in **May 2018 and in progressing well**.
   Anticipated achievement: All university's information assents will be protected from unauthorized access, modification or destruction.

5. Implementing computer LAN in the new Teaching and Research Laboratory Complex. The ICT team under my supervision is currently implementing this project which will be complete within this month of **July, 2019**.
   Anticipated achievement: When this project will be complete, the new laboratory complex will have a LAN and Internet connectivity to facilitate office and research work.

6. The new ERP Project. Together with the Director ICT, I participated in writing of the technical specifications for: *"Supply, Installation, Testing, and Training of users and Commissioning of Web-based ERP Software."* The process is **ongoing as of July 2019**.
   Anticipated achievement: When this project is successfully completed, the university will be able to automate almost all its processes and possibly go paperless.

E. Technical Reports

During my work as ICT Security Coordinator of the University, I have written the following technical reports for information and/ or action by management.

1. **Assessment of Security Posture of the University Local Area Network report**. Presented to the Director of ICT. The report was adopted and used as the basis for restructuring the University's Local Area Network in 2016.

2. **Report on the Evaluation of the ERP Security Status**, dated 7th December, 2017. Presented to the Director of ICT. The report explicated the design and implementation deficiencies of the University ERP system. Based on this report, the Director advised that the consultant should be docked some money if he was not able to solve the structural and functional deficiencies.

3. **Report on Undesirable Alteration of the University HR/Payroll Records**, dated 18th March, 2019. Presented to the Director of ICT. Identified the sources of unauthorized modifications of payroll records thus interfering with its integrity.

4.2 GREAT LAKES UNIVERSITY OF KISUMU (GLUK)- *Employer from August 2007 – to October 2013*

4.2.1 TEACHING EXPERIENCE

A. Position*: Lecturer and Head of Department:* ***August 2012 – to October 2013***

Tasks Performed

1. As Head of Information Technology department, I developed the teaching curricula for BSc. Information Technology, Diploma in Information Technology and Certificate in Information Technology.
2. I supervised all staff in the department of Information Technology.
3. I coordinated all the functions in the department of Information Technology.
4. As Lecturer in the department of Information Technology, I was tasked with the responsibilities to teach and supervise undergraduate IT and pre-university students.
5. Reviewed the Bachelor of Business Administration Curriculum for the University

B. Position: ***Assistant Lecturer:*** ***August 2010 – July 2012***

Tasks Performed

1. Head of Information Technology department.
2. I supervised all staff in the department of Information Technology.
3. I coordinated all the functions in the department of Information Technology.
4. Taught Information Technology courses and supervised undergraduate students when doing projects

C. Position: ***Graduate Assistant:*** ***August 2007 -2010***

Tasks Performed

1. Teaching diploma in information technology students
2. Supervising and guiding students doing their information technology projects
3. Staff training on basic information technology use, for example office suite, literature search from the internet, e-mail applications.

4.2.2 TECHNICAL WORK EXPERIENCE

A. Position: ***ICT Manager and System Administrator*** *- September 2009 –October 2013*

Tasks Performed

i) Development and maintenance of ICT infrastructure and staff

1. Development of wired and wireless networks in the three campuses of the university
2. Ensure that design and selection of ICT systems support the strategic objectives of the university
3. Managing the relationship with all key internal and external stakeholders and maintaining appropriate communication with them
4. Championing change and effectively managing the implementation of new technologies
5. Ensuring that ICT systems meet the needs of the users in the university
6. Overseeing all people management matters within the ICT department including staff development, training and performance management
7. Identifying staff development requirements and develop, implement and maintain comprehensive user training programs

ii) Development and implementation of ICT Strategy

1. Developed and implemented the university ICT policy
2. Alignment of the ICT infrastructural development to the university's strategic plan
3. Advising the university management on ICT matters

iii) Development and Management of ICT Budget

1. Developing and monitoring of annual budgets for ICT department.
2. Adoption of open source software where necessary for the purpose of cost cutting
3. Budget tracking and control to ensure that all the necessary expenditures are carried out within the approved budget
4. Approves, coordinates and controls all projects related to selection, acquisition, development and installation of major information systems for the university.

iv) System Security and Compliance

1. Ensuring that all information systems and networks operate according to internal security standards, external accrediting agency standards, regulatory agencies and legal requirements
2. Responsible for protection of university's information assets including overseeing development and maintenance of systems security strategies, policies and procedures for confidentiality, integrity and availability of data and disaster recovery
3. Ensuring that all information systems and networks operate according to the expected regulatory standards and fully comply to legal requirements

B. Position: *ICT Officer* *August 2007 –September 2009*

Tasks Performed

1. Computer repair and maintenance.
2. Staff training on basic information technology use, for example office suite, literature search from the internet, e-mail applications.
3. Implementing preventive maintenance of computer systems.
4. Data recovery, backups and computer virus control.
5. Software installation and support.
6. Local Area Network management.
7. Configuration and management of wireless networks.

C. Projects Implemented

During my tenure as the ICT Manager at Great Lakes University of Kisumu, I implemented the following projects in the University:

1. **Developed Local Area Networks in three (3) campuses** (two in Kisumu and one in Nairobi) and spearheaded the process of procuring Internet connectivity from suitable ISPs for all the three campuses- 2009/ 2010.
   Justification of the project: The University required Internet connectivity in all the campuses for research and administration.
   Achievement: After developing the LANs and connecting them to Internet, the University was able to use it for administration, collaborative work, research, teaching, etc.

2. **Implementation of Enterprise Resource Planning (ERP) in the University**- 2013.
   Justification of the project: The University required a system for efficiently processing and storing staff and students' records.
   Achievement: I successfully conceptualized, articulated, documented and initiated the project. I set up a project team comprised of ICT technical staff, finance, academic, research, library and procurement departments. Even though I resigned from the University before I completed the project, I handed it over to my competent successor who proceeded with it.

4.3 PART TIME LECTURER

4.3.1 JKUAT Kisumu CBD Campus: April 2012- Present

1. Teaching computer courses at undergraduate and diploma levels.
2. Offers technical support to the campus on ICT matters

4.3.2 **Moi University: April 2010- 2013**

1. Teaching computer courses at Moi University, Odera Akang'o campus.
2. Teaching in the departments of Education and Sociology (computer common courses)

4.4 CONSULTANCY SERVICES OFFERED

4.4.1 Kisumu County Government: February 2016

Training ICT technical staff on cyber security:

Tasks performed:

1. Conducted situation analysis
2. Identified user training needs
3. Conducted an intense four day training in Cyber security

4.4.2 *SOS Children's Home –Kisumu:* August 2012 –to June 2013

Tasks performed:

1. Computer network maintenance
2. Configuring and setting up network printers
3. Computer hardware and software maintenance
4. Computer security and Assurance
5. General ICT Technical advice

4.4.3 *Technology Dimensions:* May 2012 – June 2013

Tasks performed:

1. Configuring network hosts
2. Computer Security and Assurance
3. General ICT Technical advice

4.4.4 *Outreach Europe:* Dec 2008 –Dec 2009

Tasks performed:

1. Computer hardware and software repair and maintenance
2. Installation and update of antivirus and scanning computer disks
3. Repair and maintenance of printers and other I.T. devices
4. Troubleshooting and repair of mobile internet connection devices e.g. wireless modems
5. Technical advice on matters relating to Information Technology

REFEREES

1. **PROF. ANTHONY RODRIGUES,**
   Professor of Computer Science and Director of ICT,
   School of Informatics and Innovative Systems,
   Jaramogi Oginga Odinga University of Science and Technology,
   Email: tonyr@jooust.ac.ke,
   Mobile no: +254708726981.

2. **DR. GEORGE RABURU**,
School of Informatics and Innovative Systems,
Jaramogi Oginga Odinga University of Science and Technology,
Email: graburu@gmail.com
Mobile no: +254700911917

3. **DR. SILVESTER ABEKA,**
Dean, School of Informatics and Innovative Systems,
Jaramogi Oginga Odinga University of Science and Technology,
Email: silvancea@gmail.com
Mobile no: +254710581009