

CURRICULUM VITAE

1. **Family name:** Mwebaze
2. **First names:** Johnson
3. **Nationality:** Ugandan
4. **Education:**

Institution [Date from - Date to]	Degree(s) or Diploma(s) obtained:
University of Groningen, The Netherlands, 2012	PhD in Computing Science
Makerere University, Kampala, 2004	MSc Degree in Computer Science
Makerere University, Kampala, 2002	Post Graduate Diploma in Computer Science
Makerere University, Kampala, 1995-1997	BSc in Mathematics

5. **Language skills:** Competence on a scale of 1 to 5 (1 - excellent; 5 - basic)

Language	Reading	Speaking	Writing
English	1	1	1
Swahili	5	5	5

6. **Membership of professional bodies:**

- Association of Computing Machinery (ACM), Member Number: 0634547
 - IEEE Computer Society-Member/Account: 8072850
 - I-Network Uganda
 - Linux User Group Uganda
7. **Other relevant skills:** Proficient in Software Development, Data Science using statistics and Machine Learning Technics
 8. **Present position:** Lecturer, College of Computing and Information Sciences, Makerere University.

9. **Brief Profile:**

I hold a PhD in Computer Science from the University of Groningen, the Netherlands. I was awarded an MSc in Computer Science from the Makerere University 2003, and BSc in Mathematics from Makerere University in 1997. I also hold several other postgraduate and professional certificates and diplomas from across the globe.

I have demonstrable skills and good experience in systems analysis, software design, implementation of Management Information Systems, Social registries, and identification systems. I have also demonstrated ability to work with stakeholders from diverse background on complex issues of national and regional importance that have enabled me to lead teams that produce excellent consultancy reports/ outputs within the agreed timeframes.

Currently I am a consultant for the World Bank, UNICEF, & Development Pathways. I am specifically involved in the establishment of social registries, social protection information systems, knowledge Management and other undertaking analytic works using statistics and machine learning models

I am also a Lecturer and Researcher at the College of Computing and Information Sciences, Makerere University. I have collected, studied, and interpreted large datasets; conducted reports; performed accurate, successful data management.

I have been instrumental in the planning and implementation of private sector institutions including ICT Consults Ltd and Uganda Technology and Management University (UTAMU).

10. Social Registries & Unique Identification Systems

For the last 4 years, I have been involved in the providing Technical Assistance and Advisory Services to GHANA, LIBERIA, Kenya, Malawi and Sierra Leone, for the development of national social registries. Social registries provide a gateway for households to register and be considered for potential inclusion in one or more social programs based on an assessment of their needs and conditions. That assessment usually considers measures of socio-economic status, categorical factors, or a combination of both, which are often criteria used by programs in prioritizing eligibility for benefits and services.

The technical assistance includes a range of activities to support the design of national social registries & identification systems using global good practice (e.g. universal access, multifunctional usage and interoperability). The following is a list of technical assistance activities, I have been involved in:

- I. Recommendations on design, including:
 - Design options, including cost-benefit analysis of different options, to increase enrollment and coverage;
 - Design options to integrate civil registries with national ID; Guidance on appropriate technology (e.g. enrollment, database structures, credential options, deduplication, and cybersecurity);
 - Design sustainable business models of ID systems; and
 - Design authentication systems.
- II. Integrate identification systems into service delivery programs.
- III. Monitoring and evaluation mechanisms.
- IV. Ensuring end-user engagement from design through implementation

Social registries use unique identifiers to facilitate cross-checks of administrative information systems from other government agencies to validate and verify data on registrants. They also use unique identifiers to facilitate the authentication of those being registered in the Social Registry.

The Ghana National household Registry and The Liberia National Household Registry are designed to use unique identification numbers with biometric data for identification of household members, since GHANA and Liberia do not have universal national identification numbers. The Kenya & Malawi Registries are integrated with the National Identification Database and use the NIN for identification of household members. The Sierra Leone social registry uses its one uniquely generated identification number, and this aided in the production of QR Coded ID for all Members that were register for benefits in any social protection program.

11. Contributions to Science

I developed the Astro-WISE (www.astro-wise.org) dependency-based data model that supports scientific use-cases for the detecting and analysing Quasi-stellar objects. Quasi-stellar objects (QSOs or quasars) are the active cores of distant galaxies and belong to the most distant objects that can be detected. Galaxies with a massive black hole in their center can have phases of extreme activity in their nuclei due to accretion of mass. Quasars can be brighter than the galaxy that hosts them and can be detected beyond a redshift of 7. Detecting quasars at high redshift probes the Universe at an early age. Quasars can be used to study reionization cosmological structure growth and the formation of super massive black holes. Finding more high redshift quasars is therefore important to understand the early Universe and how it evolves.

QSO's are unresolved due to their small size and long distance. Therefore, they are point sources and cannot be distinguished from stars by their shape. The ultimate way to disentangle quasars from stars is through spectroscopy, which can only be taken for a limited set of sources. The colour properties of quasars and stars are very different and can therefore be used to perform a rough selection to prepare a sample for follow-up spectroscopic observations. That side, I developed a data model that accommodates external data and provides the necessary processing, comparison and checking with these external data. **I was then able to discover the first high-red shift quasars high redshift quasars at redshift >6.5**

This is Artificial intelligence process, which involves building instruments calibrating models, and image analysis. I also developed a class-based object versioning framework that supports dynamic changes to pipelines while managing dependencies. The framework addresses the management of arbitrary changes made to scripts during a data row and the association of these changes to data created. This is mainly very important to research and/or scientist as they do, they experiment, most often, they have several results without knowledge of which modification in the scripts produced the results or artifact.

12. Specific Regional experience in:

Country	Dates (from-to)	Country	Dates (from-to)
Uganda	2001 - To date	Ghana	2017/2018
Kenya	2010/2015/2016/2018	Gambia	2017/2018
Rwanda	2018	Liberia	2017/2018
Tanzania	2018	Sierra Leone	2016/2017/2018
Malawi	2019/2020	Ethiopia	2019/2020

13. Professional experience:

Dates (from-to)	Location	Company/Organisation	Position	Description
June 2018 - to date	Uganda	EAC Secretariat	Knowledge Management Consultant	Scoping, designing, and developing the EAC Regional Web-Based Knowledge Management Portal for Health .
June 2018 - Nov 2018	Kenya / Malawi / Ethiopia	Development Pathways (UK)	Systems Analyst	Scoping, designing the Country Social Protection System for use by Kenya Counties to manage government of Kenya County Social Protection Programmes . Scoping, designing the Unified Beneficiary Registry for Malawi Scoping, designing the Urban Productive Safety Nets Program for Ethiopia Scoping, designing the data Analytics and reporting tools for the Unified Beneficiary Registry for Malawi Analysis and Design of the Single Registry for Social Protection for the government of Uganda
Jan 2018 - to date	Gambia	The World Bank Group	Social Registry Consultant	Design and development of functional requirements for Gambia's Social Registry and a road map for its development
Sept 2017 - to date	Sierra Leone	The World Bank Group	GRM Consultant	Establishment of (i) Social Registry and the MIS of the Safety Nets Program ; (ii) Grievance Redress Mechanism for the Safety Nets Program ; (ii) designing a Data Exchange and interoperability Platform used to exchange data between Government and stakeholders.
Aug 2017 – to date	Ghana	The World Bank Group	MIS Consultant	(i) Establishment an independent Single Window Citizens Service for all Social Programs ; (ii) establishment of the Ghana National Household Registry ; (iii) Data Analysis and Development of Visual Dashboards for use by the Ministry of Gender Children and Social Protection ; (iv) Development of a Referral Database of all SP (v) MIS Assessment review and implementation support of the Management Information Systems for Livelihood Empowerment Against Poverty Cash Transfer Program ; (vi) Design & implementation of the MIS of the Public Works Program. This led to the 1 st paperless public works program
Aug 2017 – to date	Liberia	The World Bank Group	MIS Specialist	Development of an Integrated Social Protection System on the Liberian Social Safety Nets Project for Liberia. <ul style="list-style-type: none"> • Development of operational Manuals for LSSN, including: The Social Registry Handbook, the Integrated MIS Handbook, Grievance Redress Handbook, Social Registry Monitoring and Evaluation Frameworks, Social Cash Transfer Handbook. • Business Process Modelling for the Social Registry and Social Cash Transfer Programs • Development of Technical Specifications for IT Equipment & Software, Data Centre for the Ministry of Gender, Children and Child Protection and the 3rd Party Data Centre. • Development of Term of Reference for the Software Development Firm, Data Collection Firm and the Payment Assessment Consultant • Development of the CAPI data collection tools for Liberia Youth Opportunities Project and the Girls Ebola Recovery Livelihood • Participated in the development of the PMT Questionnaire for data intake.
Jan 2017 – July 2017	East Africa	GiZ, Inter-University Council of East Africa Imprint, (U) Ltd	Consultant & Information Systems Developer	Mapping the Economic Context and Needs Assessment for Graduate Education and Training in “Embedded and Mobile Systems” in East Africa. The main objective of this consultancy assignment was to provide a mapping and needs assessment regarding the economic context in the EAC region containing relevant background information for the Centre of Excellence in Information and Communication Technology in East Africa. As the consultant, I provided a mapping on;

				<ul style="list-style-type: none"> Private and public sector service providers in the EAC region in the fields of IT, particularly with regards to digitalisation, digital economy, automation and embedded technology (key branches, key players, existing initiatives, projects and platforms for knowledge exchange and innovation); Economic sectors/branches and government or civil society sectors with particular interest and need in IT/automation/embedded and mobile systems. Existing and potential models and modes of cooperation with the private sector regarding the labour market-oriented Master Programme “Embedded and Mobile Systems” Assessment of further training needs in the field of “Embedded and Mobile Systems” for professionals and unemployed graduates (numbers of interested Bachelor graduates and experienced professionals, main areas of training); Potential contributions and collaboration of the private sector regarding the Master’s program “Embedded and Mobile Systems” (first assessment of interest and commitment).
Jan – Sep 2016	Uganda	Public Procurement & Disposal of Assets	Systems Analyst	Development and implementation of e-learning system to facilitate PPDA in executing its capacity building mandate in Public procurement and contract management . This system will make PPDA training and capacity building function in synch with the technological developments throughout the world where it is now a trend that many organizations in an attempt to reduce their training costs develop customized eLearning materials for in-house usage.
Jan – 2015 – Feb 2016	Uganda	GIZ/ Makerere University Centre for Climate Change Research and Innovations (MUCCRI)	Knowledge Management	GIZ Global Carbon Markets Program: Scoping, design and development of a Knowledge Management System for Climate Change Department and Makerere University Centre for Climate Change Research and Innovations (MUCCRI).
Jun 2010 – June 2012	Uganda	Makerere University, HP and UNESCO	Principal Investigator	Establishment of an African Centre of Excellence for Innovative ICT Solutions for Developing Countries. In general, the project had three key objectives, namely, encouraging locally relevant ICT innovations, establishing collaborations with other universities through networking, and building capacity in distributed networking.
Sept 2014	Uganda	Government of Uganda Justice, Law and Order Sector	Systems Analyst	Design of the Integrated JLOS Management Information System (IJMIS) to enable sharing of information and collaboration across Justice, Law and Order sector institutions and to generate integrated reports in order to effectively deliver justice to the public
Jun 2014	Uganda	Bank of Uganda, GIZ	Systems Analyst	Consultancy services to develop a financial literacy e-learning System for all financial institutions in Uganda
Jan- June 2014	Uganda	Ministry of Foreign Affairs	Systems Analyst	Technical consultant to establish a unified messaging and information sharing solution across all Ministry of Foreign Affairs establishments. The aim of this project was to improve communication and information sharing across its missions, embassies and consulates through the designing and implementation of a unified communication solution (Voice over Internet Protocol (VoIP) and Virtual Private Networks (VPN). The United Nations Development Program funded this project.
Sept 2012 – To-date	Uganda	Uganda Technology and Management University	Director	Scoping & Development of Learning Management Systems for Uganda Technology University by adopting and customizing freely available open-source software, including: (i) KoHa for the provision of an Integrated Library System, we through Koha; (ii) Moodle for the Virtual Learning Environment (VLE); (iii) Google-apps for Lecture Capture/Podcasting; (iv) Apache open meetings for Online Lectures/Webinars/Remote Participation; (v) LDAP/Radius for Network Authentication, and Authorization and (vi) DSpace for managing our digital content and (v) web-based in-house Students Registration System and Results Management System.

Aug 2008 – Aug 2012	The Netherlands	Kapteyn Astronomical Institute, NUFFIC	Research Fellow	Development of tools for analysing Astronomical images. These tools are now part of Astro-WISE MIS. Astro-WISE is now astronomical system that presents research tools for exploring, visualizing and handling large astronomical image data
2005 – To date	Uganda	Makerere University	Lecturer	See Section Teaching Experience and Graduate Student Supervision

Executed Assignments with ICT Consults (U) Ltd

Dates (from-to)	Location	Company & reference person	Position	Description
Jan – Dec 2016	Uganda	Uganda Business and Technical Examinations Board	Consultant/ ICT Systems Developer	<p>Design and Development of Information Communication Technology (ICT) Strategic plan and Policy</p> <p>Relevant work:</p> <ul style="list-style-type: none"> • Document review: a review of all relevant documents relating to operations of ICT in the Board • Benchmark best practices from similar Boards in Uganda and Kenya • Stakeholder consultations on the proposed policy/strategy • Facilitation of the strategic consultative workshop; • Development of a five (5) year strategic plan and policy for UBTEB; • Facilitation of a strategic plan presentation workshop; • Documentation of proceedings and preparation of the workshop report.
Jan – Dec 2015	Uganda	World Health Organisation	Consultant/ Information Systems Developer	<p>Implementation of the OpenMRS system in HIV/AIDS clinics associated with Mbarara, Masaka and Mbale Hospitals in Uganda</p> <p>Relevant work: The purpose of the project Implementation of the OpenMRS system in HIV/AIDS clinics associated with Mbarara, Masaka and Mbale Hospitals in Uganda</p> <ul style="list-style-type: none"> • Customize and develop Software; • Design and Develop Software for using special needs assessments; • Manage the installation of the software on the clinics' server; • Train staff on the use of the software installed and the management of the system; • Management of the Network installations and infrastructural set up at the hospitals.
Jan - Dec 2012	Uganda	Ministry of Constitutional Affairs Government of Uganda	Consultant/ Information Systems Developer	<p>Automation of the Birth Death Registry of the Ministry of Constitutional Affairs of Uganda</p> <ul style="list-style-type: none"> • Collect data on network and what actions should be taken to remedy the weak points of the Network at the central registry; • Study and identify the hindering infrastructure factors that are responsible for constraining the full achievement of ICT usage and propose a strategy and plan for their resolution; • Design Technical and Functional requirements for the Birth Death Central Registry System; • Design the Budgetary Master Plan for the Central Registry Automation; • Find out on the availability of competent, adequately trained technical human resource to manage the ICT infrastructure; • Investigate the developments in software and hardware that would be suitable for the central registry; • Budget for the upgrades of equipment to cater for the increasing demand for Technology resources; • Plan and lay a strategy for constantly monitoring the security aspects of the Network and the infrastructure; • Study the existing Network and infrastructure and advice on how well it can be better maintained;

				<ul style="list-style-type: none"> • Assess Requirements to improve establish risk management strategies to ensure data integrity, data security, minimum data loss and down time of system; • Assess the interfaces and database at the central registry; • Assess hardware and software requirements at the Central Registry; • Assess movement of Records in order to eliminate loss of forms before capture; • Assess the human resource requirements and draw up a plan to improve the same.
May 2012	Uganda	Nuffic/Makerere University	Consultant/ ICT Systems Developer	<p>ICT Infrastructure/Network Assessment and upgrade at the 4 Public Universities of Uganda</p> <p>Relevant work:</p> <ul style="list-style-type: none"> • Collect data on network and what actions should be taken to remedy the weak points of the Network for the universities; • Study and identify the hindering infrastructure factors that are responsible for constraining the full achievement of ICT usage and propose a strategy and plan for their resolution; • Find out on the availability of competent, adequately trained technical human resource to manage the ICT infrastructure; • Investigate the developments in software and hardware that would be suitable for the universities; • Budget for the upgrades of equipment to cater for the increasing demand for Technology resources; • Plan and lay a strategy for constantly monitoring the security aspects of the Network and the infrastructure; • Study the existing Network and infrastructure and advice on how well it can be better maintained; • Recommend the management tools to be used by the universities such as the network devices for ease of network management; • Find out the extent to which the existing ICT Policies addressing the ICT infrastructure and network upgrades needed for Intranet and Internet connectivity; • Lay a strategy (Plan) for an increased network access in order to cope with the increasing needs and to adopt new technologies like multimedia and e-learning technologies; • Advise on how ICT infrastructure should be approached; • Give advice about the Network and ICT infrastructure professional development requirements.
Feb – March 2011	Uganda	Makerere University	Consultant	<p>Needs Assessment, Design, Development and Deployment of a dynamic Academic students Register’s Transcripts Software System for Makerere University Republic of Uganda</p> <p>Narrative description of the Program:</p> <p>Need assessment consultancy and designing a transcript processing system that was aimed at reducing the inefficiencies in the manual system, which resulted into delays and a lot of inaccuracies in the transcripts processed. Developed a system for which each faculty entered results of its students and would forward them to the academic registrar’s office over a wide Area network.</p> <p>Actual services provided:</p> <ul style="list-style-type: none"> • Needs assessment consultancy • Systems Analysis and Investigation • Development and Testing of the transcript processing system • Training of the client’s staff in effective use of the system.

<p>April 2008 - April 2009</p>	<p>Uganda</p>	<p>Educational Service Commission/Belgium Technical Cooperation</p>	<p>Consultant</p>	<p>Design Development of Document Management System for Education Service Commission (ESC) Narrative description of the Program: ICT Consults was contracted to Design and Develop an Integrated Document management system for Education Service Commission in the Republic of Uganda". Actual services provided: Situation analysis – to study and analyze the current document management and information flow of the commission. The major areas covered included but were not limited to:</p> <ul style="list-style-type: none"> • The available hardware and software at the commission; • The database management systems of the commission, inclusive of the data bank and storage facilities; • The system administration at the commission; • Manual workflow and data analysis at the commission; • Electronic, mailing system, web access/development and system maintenance at the commission; • Current government of Uganda policy/framework for records and document management with a view of identifying the bottlenecks/ strengths likely to hamper/promote complete/successful implementation of an electronic record and document management system; • Current computer literacy/skills level at ESC. <p>Functional and Technical Requirement Specifications – Based on the findings of the study and analysis above, the ICT Consults:</p> <ul style="list-style-type: none"> • Developed the system functional requirements and technical specifications; • Assisted ESC in procurement and implementation of the desired systems; • Provided advisory and supervisory roles during the implementation of the system up to system test and acceptance by the ESC.
<p>May 2007 – Oct 2007</p>	<p>Uganda</p>	<p>FCIT and University of Bergen</p>	<p>Consultant</p>	<p>Implementation of Software for Makerere University Demographic Surveillance Site at Iganga and Mayuge Districts (Phase II) Narrative description of the Project: This release will have the following functionality:</p> <ul style="list-style-type: none"> • Import the FoxPro HRS data into an SQL Server database • The handheld2 will support the entry of one simple event (mortality or out migration). • Consistency logic will test whether data entered about the event is legal given the current state of the population (for example, death cannot happen to an individual who is not currently resident). • Server-based reports will list inconsistent information. • Server software (VB-HRS) will allow for amendments to be made to the data collected with the handheld2. • A handheld2 data entry system for the key demographic events (birth, deaths, migrations, marital status changes, household changes). • Consistency logic to test for the legality of key demographic events. • Individual look up forms to obtain internal migrant Ids. • Server software (VB-HRS) for making amendments to key demographic events. • A version that will be made available for preliminary testing by systems people in Uganda. • An example of a survey study that integrated with the DSS data is produced. Dataflow from Server to field will be handled using paper forms (amendments, fixes to forms). • Management of incoming forms to use a slightly modified HRS functionality.

				<ul style="list-style-type: none"> • Use STATA as mechanism to generate working files for statistical analysis and demographic rates (workshop, sample scripts, statistician). • Incomplete forms tied to the handheld computer on which it was originally collected. <p>Services being provided by the consultant:</p> <ul style="list-style-type: none"> • System implementation • Customization and Testing of the system • Training of staff on the use of the system.
Nov 2007 – June 2009	Uganda	Bank of Uganda	Consultant	<p>Bank of Uganda Integrated Library Access and Document Management Information System</p> <p>Narrative description of the Program: ICT Consults was contracted to conduct ICT Infrastructure/Network Assessment and design the integrated library and document management information system for the Bank of Uganda.</p> <p>Actual services provided:</p> <ul style="list-style-type: none"> • ICT Needs Assessment • Carry out a detailed Analysis and Specification for the system and equipment needed to make the assignment a success • System functional and non-functional feature requirement specification • System design and development • Prepare Request for proposals on behalf of bank of Uganda for the system specified • carry out Vendor Selection services on Behalf of Bank of Uganda • Support Contract Negotiations • Support and supervise the System Implementation at Bank of Uganda
Aug 2006 – Dec 2007	Uganda	Makerere University School Public Health	Consultant	<p>Development of Software for Makerere University Demographic Surveillance Site at Iganga and Mayuge Districts (Phase I)</p> <p>Narrative description of the Project:</p> <p>The purpose of the project was to construct software for handheld devices to record changes in the population of the Iganga/Mayuge Demographic Surveillance Field site:</p> <ul style="list-style-type: none"> • Design and develop Software for the handheld2 to allow demographic changes in the population of the Iganga/Mayuge field site to be entered. In particular, the handheld2 software must record information about births, deaths, marital status changes, migrations, and changes in the composition or location of a household. • Design and Develop Software for a Windows server1 that supports the robust transfer of demographic update data from the handheld to a database resident on the server. • Design and Develop Software for using special studies in relation to the household visits. Special studies will use handhelds2 for data collection and then have a mechanism to transfer the data to the server. • Design and Develop Software for a Windows server that supports electronic management of forms with queries (errors, return for checking, incomplete forms) and review of forms. • Design and Develop Software for a Windows server to allow reports to be generated and amendments to be applied to the server database (VB-HRS). • Design and Develop Software for a Windows server that allows for management of special studies (either surveys or longitudinal) in a longitudinal manner linked to the demographic data system. Special studies will use handhelds for data collection and then have a mechanism to transfer the data to the server.

				<ul style="list-style-type: none"> Design and Develop Software for the handheld to allow for handling of query forms and usage of special studies <p>Actual services provided:</p> <ul style="list-style-type: none"> System Analysis & Investigation; Design, Development and Testing of the hand held and server system; Training of staff on the use of the system.
Mar - Oct 2005	Uganda	Micro Finance Outreach Plan Capacity Building Unit Kampala - Ministry of Finance, Planning and Economic Development	Consultant	<p>Design, Development and Deployment of Web-Driven Monitoring and Evaluation System for Micro Finance Outreach Plan Capacity Building Unit Kampala</p> <p>The objective of the project was to design a system to coordinate and:</p> <ul style="list-style-type: none"> To encourage and facilitate easy communication and collaboration among employees so that they may go about their essential work more rapidly; To maximize internal use of the web and Internet technologies so as to efficiently share data and documentation; To develop and deploy critical applications to support organizations operations and management decision-making; To publish and share valuable business information easily, inexpensively and effectively via dynamic websites and other services. Facilitate in monitoring and evaluation of Micro-finance projects. <p>Actual services provided:</p> <ul style="list-style-type: none"> System Analysis & Investigation; Development and Testing of the system; Training of staff on the use of the system.
July 2002 – June 2003	Uganda	ICPAU (Institute of Chartered Professional Accountants Uganda)	Consultant/ Information Systems Developer	<p>Design, Development and Deployment of Students' Academic Records and Membership Management System for I.C.P.A.U</p> <p>Carried out a Needs Assessment and designed and developed a Web based Database management System that could enable Display of Students results on the ICPAU website, storing of student results and their details, automatic generation of transcripts and certificates, automatic writing of student invitation letters for examinations and allocation of examination seat numbers</p> <p>The system also stores details of ICPAU professionals by tracking their professional experience in the field and monitoring of their professional development.</p>
May - Sept 2002	Uganda	Makerere University School of Post Graduate Studies	Consultant/ Information Systems Developer	<p>Needs Assessment and Design of a System to Coordinate research at the School of Postgraduate Studies</p> <p>Needs assessment consultancy and designing of a system to coordinate researchers at the school of postgraduate studies by enabling instant access to previous research done by postgraduate students and MUK researchers. The system could enable instant search capabilities to allow instant access to research done, papers published, dissertations, theses and programs.</p> <p>Actual services provided:</p> <ul style="list-style-type: none"> Needs assessment consultancy; Systems Analysis & Investigation; Development and Testing of the system; Training of staff of the school of postgraduate studies in administration of the system.

14. Teaching Experience

Lecturer (todate), Makerere University, College of Computing and Information Sciences and Uganda Technology and Management University.

Course ID & Name	Topics discussed or Tools used
PROGRAMMING COURSES	
Advanced Programming	Advanced programming concepts using C++, JAVA and Python
Network Programming	The course focuses on how to create programs that communicate over the internet.
Internet Programming	Focus is on building Webapps. Tools discussed and used during this course include HTML, CSS, JavaScript, PHP, Ajax, XML, ASP.Net, etc
Software Engineering	
Software Engineering	Software Architectures and Patterns, Requirements Engineering, Performance Engineering of Software Systems, Software Quality Assurance and Testing
Software Metrics	Introduces foundations of measurement theory, models of software engineering measurement, software products metrics, software process metrics and measuring management.
Modelling and Simulation	This course introduces modelling methods and simulation tools. It provides a basic guideline towards different methodologies that can be applied to solve any kind of problem.
Big Data Analysis and Data Warehousing for Business Intelligence	The course is designed to take students using the MapReduce framework for handling big data and how to explore large and complex datasets
Networks and Data Communication	
Data Communication & Computer Networks	Topics discussed include layered network architecture, Link Layer protocols, high-speed packet switching, queueing theory, Local Area Networks, and Wide Area Networking issues, Wireless and GSM Networking, including routing and flow control.
Advanced Network Security	We discuss and simulate various aspects of network security: Bot and Botnets, DoS attacks, DNS security, Email spam, IP prefix hijacking, Network Intrusion Detection and prevention, On-line Authentication, Phishing attacks, Security inside Cloud, Spyware/Malware, TCP misbehaviours, Web security, and VoIP security
Network Performance Evaluation	We discuss how to select appropriate evaluation techniques, performance metrics and workloads for a system. How to conduct performance measurements correctly. How to use proper statistical techniques to compare several alternatives. Design measurement and simulation experiments to provide the most information with the least effort. Use of simple queuing models to analyze the performance of systems.
Internet of Things	This course introduces the fundamentals and design principles of the Internet of Things (IoT). Student will be taught architectures for the Internet of Things, IP for smart devices, fog computing, and embedded design for smart devices among other topics. Students will also be guided on development of IoT solutions for domestic and industrial environments.

PhD Student Supervised to completion

- **Peter Ochieng:** A Large-Scale Ontology Matching Tool Based on a Statistical Predictive Model

Master's Graduate students' supervision from 2010 to 2017:

- Cost Fairness as A Function of Quality of Service In Mobile Wireless Networks: Masters: Barbra Elizabeth Sayuni;
- Modeling Performance of Smart Devices In Closed Systems: Masters: Twinamatsiko Cecilia;
- A Mechanism for Controlling the Inbound Internet Traffic into A Multi-Service Network: Masters: Kato Jacob;
- Smart Metering Systems for Smart Homes: Masters: Sharon Musiimenta;
- Using Strength of Social Ties to Improve Relay Selection in Cooperative Device to Device Communication: Masters: Terhemba Michael-Ahile;
- An Energy Optimization Model for LTE/LTE Advanced Networks: Masters: Ephrance Eunice Namugenyi;
- A Semantic Based Approach for Generating Intelligent Web Content Exploiting Features of Social Web: Phd: Eter Ochieng;
- Improving Link State Routing Against Node Isolation Attacks in Android Based Environments: Masters: Kawulira Edwin;
- Auxiliary Cluster Head Protocol for Improving Reliable Routing in Clustered Mobile Wireless Sensor Networks: Masters: Frank Nkwasiabwe;
- Secure and Accountable Identity Management Solution for Mobile Devices Accessing a Networked System: Masters: Kawulira Edwin;
- An Improved Low Latency Dynamic Scheduling Queueing Algorithm for Real Time Applications: Masters: Kato Charles;
- Detection of Selfish Nodes in Delay Tolerant Networks: Masters: Kivumbi Timothy;
- A System for Analyzing Network Traffic Data and Identifying Vulnerabilities: Masters: Kapere Andrew;
- Modeling Energy Consumption and Delay for Wireless Sensor Networks With Heavy-Tailed Job Size Distributions: Masters: Nambasa Ruth.

15. Other relevant information:

Publications in press (2018):

- J. Mwebaze, S. Namara: From Manuel to 'e': A Case of the LIPW Program in Ghana

- Terhemba Michael-Ahile, J. Mwebaze: Enhancing the Distribution of Multicasting Content in A Social Aware LTE- Advanced Network Using Device-To-Device (D2D) Communication
- C. Twinamatsiko, J. Mwebaze: Modeling Performance of Smart Devices in Closed Systems
- Mukonyezi, J. Mwebaze: Prediction of Spectrum Holes in Cognitive Radio Ad-Hoc Networks
- T. Kivumbi, J. Mwebaze: Enhancing Message Dissemination in Device to Device Communication Networks Through User Interest Groups

Journal papers:

- B. P. Venemans, G. A. Verdoes Kleijn, J. Mwebaze, E. A. Valentijn, E. Bañados, R. Decarli, J. T. A. de Jong, J. R. Findlay, K. H. Kuijken, F. La Barbera, J. P. McFarland, R. G. McMahon, N. Napolitano, G. Sikkema, W. J. Sutherland, 2015, Monthly Notices of the Royal Astronomical Society, November 2015
- Mwebaze Johnson, Boxhoorn Danny and Valentijn Edwin: Tracing and using data lineage for pipeline processing in Astro-WISE, In the Journal of Experimental Astronomy, Volume 35, Issue 1-2, pages 131-155, (2013)
- Mwebaze Johnson, Boxhoorn Danny, Rai Idris and Valentijn Edwin:
- Supporting dynamic pipeline changes using Class-Based Object Versioning in the Journal Experimental Astronomy, volume 35, issues 1-2, pages 157-186, (2013)
- Mwebaze Johnson, Boxhoorn Danny, and Valentijn Edwin: Subimage Data Processing in Astro-WISE in the Journal of Experimental Astronomy, volume 35, issues 1-2, pages 245-282, (2013)

Peer-reviewed conference papers:

- Mwebaze Johnson, Boxhoorn Danny and Valentijn Edwin: Dynamic Pipeline Changes in Scientific Data Processing. IEEE, Stockholm (2011) ISBN: 978-1-4577-2163-2
- Mwebaze J, McFarland J, Boxhoorn D, and Valentijn E.: Towards a Provenance Framework for Subimage Processing for Astronomical Data. ACM New York, NY, USA (2010), Pages 1277-1280, ISBN: 978-1-4503-0099-5
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Conferences and workshops attended:

- 5th- 8th December 2011, Sweden, Speaker at the conference, 7th IEEE e-Science conference Stockholm : Dynamic Pipeline Changes in Scientific Data Processing
- October 24th, 2011, Bonn, Germany, 1st International workshop on Linked Science : Linked Distributed Processing
- October 26 -30th, 2010, Toronto, Canada, 19th International Conference on information and knowledge Management : Towards a Provenance Framework for Subimage Processing for Astronomical Data;
- 11th to 13th October 2010 and 15 -16th 2010, Bela Bela, South Africa, Annual Research Conference of the South African Institute for Computer Scientists and Information Technologists : A Data Lineage Model for Distributed Subimage Processing
- August 19 – 21st, 2009, Troy New York, Indianapolis, IN, USA, 12th International Conference on Network-Based Information Systems : Tracing and Using Lineage for Scientific Data Processing
- June 23 - 25 the Marrakech, Morocco, Workshop of the Hewlett-Packard Software University Association, Efficient Enterprise Architectures.