CURRICULUM VITAE RONALD EKYALIMPA

PERSONNAL INFORMATION	
Last Name:	Ekyalimpa
First Name:	Ronald
Gender:	Male
Country of Citizenship:	Canada
Languages:	English, Rukiga
Current Position:	Assistant Professor
Current Address:	Department of Civil & Architectural Engineering College of Engineering Sultan Qaboos University PO Box 33, Al-Khood, Postal Code 123, Sultanate of Oman
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EDUCATION AND QUALIFICATIONS

2009 – 2015: PhD (Honors Degree) in Civil Engineering, University of Alberta, Edmonton, Canada (Computer Simulation of Complex Stochastic/Dynamic Large-Scale Systems).

2004 – 2007: MSc. (Honors Degree) in Civil Engineering, Makerere University, Kampala, Uganda (Hydraulics and Hydrology).

2000 – 2004: BSc. (Honors Degree) in Civil Engineering, Makerere University, Kampala, Uganda.

WORK EXPERIENCE

- 2023 To date: Assistant Professor at Civil and Architectural Engineering, Sultan Qaboos University.
- 2018 2023: Lecturer at CEM Department, CEDAT, Makerere University.
- 2017 2018: Assistant Lecturer at CEM Department, CEDAT, Makerere University.
- 2015 2016: Post-Doctoral Fellow at the University of Alberta, Civil and Environmental Engineering Department (Canada)
- 2007 2009: Engineer-In-Training (Structural Design) at Acor Consults (Uganda)
- 2009 2009: Assistant Procurement Officer at African Development Bank (AFDB Uganda Office)

2006 – 2009: Teaching Assistant/Assistant Lecturer at CEM Department, CEDAT, Makerere University

2004 – 2006: Teaching Assistant at Civil Engineering Department, Kyambogo University

PROFESSIONAL BODY AFFILIATION

Graduate Member of the Uganda Institution of Professional Engineers (UIPE) since 2008.

TEACHING ASSISTANTSHIPS (DURING PHD STUDIES)

2013 – Cive. 606 Analysis and Design of Construction Operations – Computer Simulation (Graduate Course – MSc. and PhD Construction Engineering/Structures/Traffic & Transportation)

2012 – Cive. 606 Analysis and Design of Construction Operations – Computer Simulation (Graduate Course – MSc. and PhD Construction Engineering/Structures/Traffic & Transportation)

- 2012 Cive. 653 Readings in Project Management (Graduate Course MSc. and PhD Construction Engineering)
- 2011 Cive. 606 Analysis and Design of Construction Operations Computer Simulation (Graduate Course MSc. and PhD Construction Engineering/Structures/Traffic & Transportation)

COURSES TAUGHT (MAKERERE UNIVERSITY)

CMG 8104: Materials of Construction (Graduate Course - MSc. Construction Project Management)

QUS1106: Engineering Mathematics I (Undergraduate Course – BSc. QS)

LEC110:1 Mathematics for Surveyors (Undergraduate Course – BSc. LE)

CMG1108: Engineering Mathematics (Undergraduate Course – BSc. CM)

LEC1100: Computer Applications for Surveyors (Undergraduate Course – BSc. LE)

QUS1104: Computer Literacy (Undergraduate Course – BSc. QS)

CIV 1205: Elements of Structural Analysis (Undergraduate Course - BSc. CM, BSc. LE, BSc. QS)

TEC3205: Entrepreneurship for Technology (Undergraduate Course – BSc. QS)

CMG3206: Entrepreneurship for Managers (Undergraduate Course – BSc. CM)

LEC3202: Entrepreneurship for Surveyors (Undergraduate Course – BSc. LE)

ACADEMIC AWARD(S)

Uganda Institution of Professional Engineers (UIPE) Student Award for best performing student in Foundation Engineering.

Uganda Institution of Professional Engineers (UIPE) Student Award for best performing student in Soil Mechanics.

Uganda Institution of Professional Engineers (UIPE) Student Award for best performing student in Water Resources Engineering.

Uganda Institution of Professional Engineers (UIPE) Student Award for best performing student in Theory of Structures II.

The Robert Stollery/USF&G Insurance Company of Canada Award for the most outstanding graduate student in Construction Engineering and Management at the University of Alberta, Canada.

The Joseph D. Thompson Zurick Canada Award for the excellence as a graduate student in Construction Engineering and Management at the University of Alberta, Canada.

URLS TO MY SCHOLARY PROFILE REPOSITORIES

- Google Scholar: <u>https://scholar.google.com/citations?hl=en&user=CH3Z5hYAAAAJ</u>
- Research Gate: <u>https://www.researchgate.net/profile/R-Ekyalimpa</u>

ACADEMIC JOURNAL REVIEW WORK

Reviewer for the American Society of Civil Engineers (ASCE), Journal of Construction Engineering and Management

TEXT BOOK(S) AUTHORED

AbouRizk, S. M., Hague, S, A., and Ekyalimpa, R. (2016). Construction Simulation: An Introduction Using Simphony. ISBN: 978-1-55195-357-1

ACADEMIC PUBLICATIONS

Shuaaili, Mohammed & Al-Alawi, Mubarak & Ekyalimpa, Ronald & Al Mawli, Bader & Al-Mamun, Md. Abdullah & Shahri, Mohammed. (2023). Near-miss accidents data analysis and knowledge dissemination in water construction projects in Oman. Heliyon. 9. e21607. 10.1016/j.heliyon.2023.e21607.

Sempewo, J, I., Mushomi, J., Tumutungire, M. D., Ekyalimpa, R., and Kisaakye, P. (2021). The impact of COVID-19 on households' water use in Uganda. Journal of Water Supply, 21(5). ISSN 1606-9749, E-ISSN 1607-0798.

Ekyalimpa, R. (2020). Emulation of the Central Limit Theorem Using a Monte-Carlo Based Approach. Mathematical Theory and Modeling. 58-73. Vol. 10, No. 3.

Ekyalimpa, R. and Tugumenawe, I., (2020). Data Analytics for Numeric Modeling and Its Application to an Offsite Concrete Block Production Operation. Mathematical Theory and Modeling. 54-69. Vol. 10, No. 3.

Asiimwe, V., Mukonyezi, S., Akugizibwe, P., and Ekyalimpa, R. (2020). Production Metrics for Planning Structural Drafting Operations for Reinforced Concrete Staircases in Structural Firms within Uganda. Journal of Civil and Environmental Research, 17-29. Vol. 12, No. 5.

Osele, O. A., Asiimwe, V., and Ekyalimpa, R. (2020). Material Cost Comparison for Masonry and Framed Partition Walls for Buildings in Uganda. Journal of Civil and Environmental Research, 54-69. Vol. 12, No. 5.

Maliheh, G., Ekyalimpa, R., Westover, L., Parent, E., Adeeb, S. (2019). Customized k-Nearest Neighborhood analysis in the management of Adolescent Idiopathic Scoliosis using 3D markerless asymmetry analysis. Computer Methods in Biomechanics and Biomedical Engineering

Ekyalimpa, R., Akolo, M, C., and AbouRizk, S. M. (2016). A Prototype for Simulating the Kinematics of Crane Rigging Oscillatory Motion Using Simphony.NET. Winter Simulation Conference, DOI: 2016:1583-1594

Ekyalimpa, R., Werner, M., Hague, S., AbouRizk, S. M., and Porter, N. (2016). A Combined Discrete-Continuous Simulation Model for Analyzing Train-Pedestrian Interactions. Winter Simulation Conference, DOI: 2016:3290-3301

Seungjun, A., Chettupuzha, A. J. A., Ekyalimpa, R., Hague, S., AbouRizk, S. M., and Chrysostomos, D, S., (2015). Fuzzy Cognitive Maps as a Tool for Modeling Construction Labor Productivity. 5th Annual Conference of the North American Fuzzy Information Processing Society (NAFIPS), 17-19 August, 2015, Redmond, WA, USA, DOI:10.1109/NAFIPS-WConSC.2015.7284150

Zhang, L., Ekyalimpa, R., Hague, S., Werner, M., and AbouRizk, S. (2015). Updating Geological Conditions Using Bayes Theorem and Markov Chain. Winter Simulation Conference, DOI: 2015:3367.3378

Ming-Fung, F. S., Ekyalimpa, R., Ming, L., AbouRizk, S. (2013). Applying Regression Analysis to Predict and Classify Construction Cycle Time. ASCE International Workshop on Computing in Civil Engineering, DOI: 10.1061/9780784413029.084

Ekyalimpa, R., AbouRizk, S., Mohamed, Y., Saba, F. (2013). "A Prototype for Project Management Game Development Using High Level Architecture." International Journal of Simulation and Process Modeling. Accepted Sept. 4, 2013.

AbouRizk, S, Hague, S., Ekyalimpa, R., Newstead, S. (2014). "Simphony: A Next Generation Simulation Modeling Environment for the Construction Domain". Journal of Simulation, Special Issue on Modeling & Simulation: new challenges and advanced solutions.

Ekyalimpa, R., AbouRizk, S (2014). A Multi-Agent Model That Emulates the Typical Competitive Bidding Process in The Construction Industry. Proceedings of the 26th EMSS, September 10-14, Bordeaux, France.

Ekyalimpa, R., Hague, S., AbouRizk, S. (2013). "Simphony: At the pinnacle of next generation simulation modeling environments for the construction domain." Proceedings of the 25th EMSS, September 25-27, Athens, Greece.

Siu, M.F., Ekyalimpa, R., Lu, M., AbouRizk, S.M., (2013). "Applying Regression Analysis to Predict and Classify Construction Cycle Time." Proceedings of the 2013 ASCE International Workshop on Computing in Civil Engineering, June 23-25, 2013, Los Angeles, California.

Ekyalimpa, R., AbouRizk, S., Farrar, J. (2012). "Effective Strategies for Simulating One-of-a-Kind Construction Projects." Proceedings of the Winter Simulation Conference, December 9-12, 2012, Berlin, Germany.

Ekyalimpa, R., AbouRizk, S., Mohamed, Y., Saba, F. (2012). "Project Management Games Using High Level Architecture." Proceedings of the 11th International Conference on Modeling and Applied Simulation, September 19-21, 2012, Vienna, Austria.

AbouRizk, S., Ekyalimpa, R., Hong, J. (2011) "The Use of Simulation as a Pedagogical Tool in Construction Education." Proceedings of the MAS, Rome, Italy, September 12-14

Ekyalimpa, R., Al-Jibouri, S., Mohamed, Y., AbouRizk, S. (2011) "Design of a Tunnel Simulation Game for Teaching Project Control in Construction." Proceedings of the CSCE Annual Conference, Ottawa, ON, June 2011.

RESOURCE MOBILIZATION

Awarded a Makerere COVID-19 RIF grant in 2020 alongside Dr. Jotham Sempewo and Martin Tumutungire, of Civil Engineering Department, Makerere University to study Impacts of COVID-19 on Water Supply Systems.

Awarded a grant to host a Satellite World Summit on Artificial Intelligence/Machine Learning alongside Dr. Dorothy Okello (Dean, School of Engineering, Makerere University), at CEDAT in 2019.

STUDENTS CURRENTLY UNDER SUPERVISION

Graduate Students (Plan A)

Geoffrey Kayima. MSc. Civil Engineering (Structural Engineering). Comparative Study of Base Shear Quantification using Ugandan Seismic code, ASCE-7 and Eurocode-8.

David Mbayo. MSc. Civil Engineering (Structural Engineering). FEA Modeling of one-way shear for FRP retrofit in flat slabs.

Alouyious Omongin Osele. MSc. Construction Project Management. An Investigation of Resource Requirements for plastering masonry brick and concrete block walls.

Bruno Muhangi. MSc. Construction Project Management. An Investigation of Resource Requirements for plastering masonry brick and concrete block walls.

Isaac Tayebwa. MSc. Construction Project Management. Production Rate Measurement for Manual Open Trenching Construction Operations.

Ronald Tugume Begumisa. MSc. Construction Project Management. Work Measurement of Prefabricated Concrete Paneled Retaining Walls.

Habert Ayesiga Baguma. MSc. Construction Project Management. Production Rate Measurement of Stone Pitching Operations for Road Open Side Drains.

Graduate Students (Plan B)

Silver Turyaremera. MSc. Construction Project Management. Technical Project and Report.

Charles Kusemererwa. MSc. Construction Project Management. Technical Project and Report.

Ronald Asiimwe. MSc. Construction Project Management. Technical Project and Report.

Graduate Students (PGD)

Leonard Akena. PGD. Construction Project Management. Technical Project and Report.

Fredrick Kayima. PGD. Construction Project Management. Technical Project and Report.

Undergraduate Students

Vanessa Asiimwe. BSc. Quantity Surveying. Exploring Laser Technology for Quantifying Discrete Construction Material Stockpiles.

Sheila Mukonyezi. BSc. Quantity Surveying. Exploring Laser Technology for Quantifying Continuous Construction Material Stockpiles

Patience Akugizibwe. BSc. Quantity Surveying. Production Rate Measurement of floor and wall tile finish construction operations

Dalilah Adnan. BSc. Quantity Surveying. Quantifying the Mortar Expended during Masonry Brick Wall Construction.

Muluta Kamoga. BSc. Quantity Surveying. Quantifying the Mortar Expended during Masonry Block Wall Construction.

STUDENTS SUPERVISED TO COMPLETION

Graduate Students (Plan A)

Mosi Abubakar Kiroge. MSc. Geomatics and Land Management. Linked Data Integration and Publishing of Disaster Data for Disaster Management in Uganda.

Graduate Students (Plan B)

Herbert Ndyomuhirwe. MSc. Construction Project Management. Technical Project and Report.

Emmanuel Muhumuza. MSc. Construction Project Management. Technical Project and Report.

Raymond Mugerwa. MSc. Construction Project Management. Technical Project and Report.

Raymond Akankwasa Kamugisha. MSc. Construction Project Management. Technical Project and Report.

Undergraduate Students

Brian Fetta Aita. BSc. Quantity Surveying. A Comparative Study of the Production Rates for Masonry Brick Wall Erection in Header and Stretcher Bonding Styles.

Henry Ebitu. BSc. Construction Management. Traffic Generation Modeling for Organized High-Density Residential Complexes.

Clinton Lubuulwa. BSc. Construction Management. A Fuzzy Ranking of Productivity Factors for Structural Steel Fabrication in Kampala.

Mansoor Ssentongo. BSc. Construction Management. Microscopic Simulation-based Assessment of the Level of Service at a Signalized Intersection in Kampala (Wandegeya Junction)

Racheal Asiimwe. BSc. Quantity Surveying. Re-Design of a Pre-timed Signalized Junction at Nakulabye, Kampala for Improved Traffic Flow.

Doreen Naluyima. BSc. Quantity Surveying. An Investigation into Partial Replacement of Sand with Murram in Cement Mortar.

Cissy Nabunje. BSc. Quantity Surveying. Investigating the Likely Causes of Cracks in Wire-mesh Plastered Ceilings in Residential Buildings.

Vincent Agaba. BSc. Construction Management. Production Rate Measurement of Structural Drafting of Staircases.

Vincent Mugwanya. BSc. Construction Management. A Comparative Study of Material Requirements for Dry Wall and Masonry Brick Wall Partitioning in Uganda.

Michael Jjuuko. BSc. Quantity Surveying. Investigating the Possible Effective Path for Construction Dispute Resolution in Uganda.

Philemon Martins Ikanut. BSc. Quantity Surveying. The State of Practice of Value Engineering and its Relevance to Uganda's Construction Industry.

Laureen Rwema. BSc. Quantity Surveying. Investigating the Alignment of Project Delivery Methods and Financial Contract Types on Construction Project Performance in Uganda.

SELECT PhD GRADUATE COURSES COMPLETED THAT FEED INTO MY COMPETENCIES

- Design and Analysis of Construction Operations (Monolithic Computer Simulation)
- Advanced Computer Simulation (Distributed Computer Simulation)
- Computer Applications in Civil Engineering (Computer Programming)
- Artificial Intelligence and Fuzzy Logic for Construction
- Construction Equipment and Methods
- Behavior and Design of Steel Structures
- Behavior and Design of Concrete Structures
- Prestressed Concrete Design and Behavior (With a bias towards parkard and Bridge Construction)
- Structural Dynamics (Analysis, behavior of structures to dynamic excitation wind, earthquake, impact loads)
- Structural Analysis
- Solid Mechanics
- Finite Element Analysis
- Traffic Operation and Control
- Traffic Flow and Network Modeling

COMPETENCIES IN TRAFFIC AND TRANSPORTATION SOFTWARE

- HCS (Intersection Control Signal Design software)
- SYNCHRO (Intersection Control Signal Design and Corridor Signal Synchronization software)
- VISSIM (Still in infancy and developing the necessary proficiency)
- AnyLogic

COMPETENCIES IN STRUCTURES/BRIDGE SOFTWARE

- STAADPRO
- SAP2000

- SAFE
- ETABS
- ABAQUS

COMPETENCIES IN PROJECT SCHEDULING SOFTWARE

- MS. Project (Microsoft)
- Primavera (Oracle)

COMPETENCIES IN COMPUTER SIMULATION LANGUAGES

- AnyLogic Simulation Language
- Cyclone Simulation Language
- Simphony Simulation Language

COMPETENCIES IN COMPILED COMPUTER PROGRAMMING LANGUAGES

- Java computer programming language
- CSharp computer programming language
- C and C++ programming language
- Visual Basic .NET computer programming language
- Visual Basic for Excel

SCRIPTING COMPUTER PROGRAMMING LANGUAGES

- Mathematica, Matlab, and R
- Python
- HTML/CSS
- Java script
- PHP
- SQL
- SPARQL/RDF
- XML
- JSON
- Groovy
- Linux scripting

INDUSTRY COLLABORATIONS

• 2011/2012 – I was tasked with developing a Simulation-based tool (Special Purpose Simulation Template) for analyzing and modeling the dynamics of tire usage for a fleet of mining trucks. Worked

in collaboration with Rod Wales (Vice President of Heavy Civil Works at Ledcor) to develop the first version of a Special Purpose Template. The next version of the template is yet to be released for use by the company in the fall.

- 2012/2013 Carried out a price inquiry investigation alongside a study to determine the installed fabrication capacity of structural steel (Bridge girders, structural steel plate work and other stick building elements) of local (Canadian and USA fabricators) and offshore (from UK, China and Korea) structural steel fabricators that service Alberta Industrial projects. This study was carried out with Maria Al-Hussein in collaboration with Paul Zubick of Supreme Steel Group and James Wotton of Ground-State Solutions (a consultancy firm based in Calgary). The Canadian Institute of Steel Construction (CISC) was the client in this project and objective was to determine how competitive local fabricators are compared to their offshore counter-parts. I designed and developed part of the data collection instruments, analyzed the data and produced a report.
- 2013/2014 Carried out a study to determine the installed module fabrication resident capacity for module fabricators in Alberta, Canada. Did the study in collaboration with Maria Al-Hussien, and Gary Trig of PCL (Vice President of Industrial Construction). Designed and developed part of the data collection instruments, analyzed the data and produced a report.

ENGINEERING PRACTICE INTERESTS

- Operations system simulation (DES, SD, ABM, Monte Carlo Simulation, Distributed simulation)
- Artificial Intelligence (Artificial Neural Networks, Support Vector Machines, Clustering algorithms etc.)
- Dynamic behavior of structures to seismic excitation
- Greenfield structural design of tall buildings and bridges
- Structural design reviews
- Connection design (structural welds and bolts)
- Pile (deep) and shallow foundation design
- Retaining wall design continuous and discretized panels
- Simulation of complex stochastic/dynamic systems
- Water supply systems design and assessment
- Design of greenfield signalized traffic control intersections (physical layout & timing)
- Calibration of timings of existing signalized traffic control intersections
- Synchronization of traffic control signals along corridors
- Traffic network modeling (Origin-destination studies, congestion pricing, dynamic traffic assignment, multi-modal system evaluations)
- Traffic flow modeling (shock wave analysis, capacity assessment, car following models, driver behavior analysis)

COMMUNITY SERVICE

2018 – **To date:** Church-based charity work: Participation in the Good Samaritan activities within the catchment area under Kanyanya Catholic Parish Church

2010 – **2013:** USchool Program at the University of Alberta

REFERENCES

Simaan M. AbouRizk, PhD, PEng, FRSC, FCAE

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Hexu Liu, PhD

Assistant Professor | Construction Engineering and Management Civil and Environmental Engineering Department | University of Michigan, USA Email: <u>hexu.liu@gmail.com</u> Phone: +12692763201

Jotham Sempewo, PhD

Lecturer | Civil and Environmental Engineering Department School of Engineering | College of Engineering, Design, Art and Technology Makerere University, Uganda Email: jotham.sempewo@mak.ac.ug or jothamsempewo@yahoo.com Phone: +256706331745 or +256776568426