LUWAGA DENIS

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PROFESSIONAL PROFILE

Geospatial professional, university lecturer and researcher with over 10 years of professional experience spanning Geographic Information Systems (GIS), Remote Sensing, spatial analysis, cartography, geospatial data management, information systems and academic teaching. Holds an MSc in Geographic Information Systems from the University of Nairobi and is currently pursuing a PhD in Geoinformatics at Mzuzu University, Malawi. Demonstrated experience applying GIS and geospatial technologies to spatial decision-making, land-use zoning, site selection, geospatial data collection, mapping and spatial analysis, with practical Remote Sensing experience supporting field planning and environmental/geospatial assessment. Research experience extends to agriculture, livestock management, spatial risk assessment, habitat suitability modelling and resource optimization. Combines geospatial expertise with an Information Technology background to support data-driven research, teaching, planning and decision-making.

CORE GIS & REMOTE SENSING EXPERTISE

Area	Expertise
Geographic Information Systems	Spatial analysis; geospatial modelling; spatial decision support; land-use zoning; site selection; spatial overlay and integration; geospatial databases; GPS/GIS field data collection; spatial data management; thematic and analytical mapping.
Remote Sensing & Earth Observation	Satellite and remotely sensed data applications; Remote Sensing for field planning; environmental and agricultural observation; image interpretation; vegetation and land-surface monitoring; integration of remotely sensed information with GIS.
Cartography & Visualization	Digital cartography; thematic mapping; map production; geospatial visualization; communication of spatial information.
Geospatial Research	Agricultural GIS; livestock and rangeland management; spatial risk assessment; habitat suitability modelling; resource optimization; environmental monitoring; climate and environmental applications.
Academic & Research Practice	GIS/Remote Sensing teaching; practical instruction; student research guidance; research project support; curriculum review and development; community engagement; scholarly publication.
Information Technology	Information management systems; online platforms; information retrieval; digital systems management; IT-enabled decision support.

EDUCATION

PhD in Geoinformatics — Mzuzu University, Malawi (Ongoing)

MSc in Geographic Information Systems — University of Nairobi, Kenya (2018–2020)

BSc in Information Technology — Ndejje University, Uganda (2014–2017)

Diploma in Computer Science — Uganda Martyrs University, Uganda (2011–2013)

PROFESSIONAL EXPERIENCE

Assistant Lecturer | Uganda Martyrs University, Uganda | 2020–Present

- Teach Geographic Information Systems (GIS), Remote Sensing and Information Technology at university level.
- Prepare and deliver lectures, practical sessions, learning materials and assessments.
- Guide and support students undertaking GIS, Remote Sensing and related research projects.
- Support students in applying geospatial technologies to real-world environmental, agricultural and development problems.
- Contribute to curriculum review and academic programme development.
- Participate in academic, departmental and research activities.

Head, ICT (Systems) | African Centre of Excellence in Agroecology & Livelihood Systems (ACALISE), Uganda Martyrs University | 2021–2023

- Applied GIS technologies to support spatial decision-making for land-use zoning and selection of optimal sites for project activities.
- Supported spatial planning and location-based decision-making for project implementation.
- Managed project information systems, information retrieval and online project platforms.
- Managed the ACALISE website and associated digital information resources.
- Supported integration of digital technologies into project information management.

GIS (Cartography) Intern | Ministry of Energy and Mineral Development, Uganda | June–August 2019

- Created oil block maps and cartographic products.
- Used Remote Sensing techniques to support field-visit planning.
- Collected and managed geospatial data.
- Supported GIS and cartographic activities within the GIS/Cartography Department.

Consultant | Uganda Martyrs University, Uganda | 2017–2021

- Delivered teaching and community engagement activities.
- Prepared and delivered lectures and teaching resources.
- Assessed students' academic work and supported student research projects.
- Contributed to curriculum review and other academic activities.

Human Resource Officer | Uganda Martyrs University, Uganda | 2017–2021

- Managed the Human Resource Information System.
- Provided IT support to the Directorate and supported digital information management.
- Supported staff welfare, employee relations, leave management, training and development.
- Participated in departmental and institutional activities.

Administrative Assistant | Uganda Martyrs University, Uganda | 2014–2017

- Supported the Human Resource Information System and IT-related activities.
- Provided administrative and front-desk support.
- Supported staff welfare, leave management, employee relations and training activities.

Assistant Administrator | Uganda Martyrs University, Uganda | 2013–2014

- Produced students' results letters and supported production of transcripts and certificates.
- Prepared data files for entering student results.
- Summarized student feedback from evaluation and assessment tools.
- Supported routine faculty and administrative activities.

SELECTED GEOSPATIAL PROJECT EXPERIENCE

Sweet Potato Value Chain Analysis in Central Buganda — Spatial Analyst | 2021–2022

- Applied spatial analysis to support assessment of the sweet potato value chain and its geographic dimensions.

SELECTED PUBLICATIONS

- Luwaga, Denis, et al. (2026). "Habitat suitability modelling of red-billed quelea (Quelea quelea) in Malawi, southern Africa." Biodiversity, 27(2), 206–217. DOI: 10.1080/14888386.2026.2636803.
- Luwaga, Denis, et al. (2026). "Sorghum and household food security in Malawi's lower Shire valley: Evidence from a six-pillar food security framework." DOI: 10.1016/j.nxsust.2026.100350.
- Luwaga, Denis, et al. (2024). "Leveraging Geospatial Technologies for Resource Optimization in Livestock Management." Journal of Geoscience and Environment Protection, 12(10), 287–307. DOI: 10.4236/gep.2024.1210016.
- Luwaga, Denis, et al. (2024). "Spatial Risk Assessment for the Proposed East African Crude Oil Pipeline (EACOP)." Open Journal of Safety Science and Technology, 14(4), 136–146. DOI: 10.4236/ojsst.2024.144010.

RESEARCH INTERESTS

- Geographic Information Systems and Geoinformatics
- Remote Sensing and Earth Observation
- Spatial analysis, modelling and geospatial decision support
- Agricultural GIS and precision agriculture
- Livestock and rangeland management
- Environmental monitoring and climate applications
- Spatial risk assessment
- Habitat suitability modelling
- Land-use/land-cover analysis
- Geospatial data science and spatial decision-making
- Resource optimization and sustainable development

PROFESSIONAL CONFERENCES & ENGAGEMENTS

- 1st Eastern Africa Agroecology Conference, Nairobi, Kenya — 2023.
- East African Petroleum Conference and Exhibition, Mombasa, Kenya — 2019.

PROFESSIONAL STRENGTHS

- Strong postgraduate specialization in Geographic Information Systems and ongoing doctoral training in Geoinformatics.
- Practical experience applying GIS to spatial decision-making, land-use zoning and site selection.
- Experience applying Remote Sensing techniques to field planning and environmental/geospatial applications.
- Interdisciplinary research experience connecting geospatial technologies with agriculture, livestock, environmental risk and habitat assessment.
- Ability to translate complex geospatial concepts into practical teaching, research and decision-support applications.
- Strong combination of GIS, Remote Sensing, Information Technology, research and academic experience.

GIS & REMOTE SENSING PROFESSIONAL SUMMARY

My professional and research experience has progressively focused on the application of geospatial technologies to understand spatial patterns, support evidence-based decision-making and address environmental and agricultural challenges. My GIS experience includes spatial analysis, cartography, geospatial data collection and management, land-use zoning, site selection, spatial decision support and integration of geographically referenced information. My Remote Sensing experience includes the application of remotely sensed information for field planning and environmental assessment and its integration within GIS workflows. My research has extended these capabilities into livestock management, agricultural systems, spatial risk assessment, habitat suitability modelling and resource optimization. This combination of GIS, Remote Sensing, Geoinformatics and Information Technology provides a strong interdisciplinary foundation for academic teaching, research, consultancy and geospatial applications in agriculture, environment, climate resilience and sustainable resource management.

REFEREES

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