

**DSA**  
Data Science Africa



# Annual Activity Report 2025

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# Foreword

Ten years ago, a small group of researchers gathered with a bold conviction: that the challenges facing Africa could be solved by Africans, using data. What began as a summer school has grown into a continent-wide movement, and this Annual Activity Report for 2025 stands as testimony to just how far that movement has come.

This milestone year has been one of extraordinary breadth and depth. In Ibadan, we welcomed 351 participants from over 20 countries to our flagship Summer School and Workshop, held under the theme Responsible Data Science: A Practical Path for Sustainable Development. The curriculum stretched from the foundations of machine learning to the frontiers of large language models, edge AI, and agentic systems, always grounded in African realities, African data, and African needs.

Our fellowship programmes have deepened their reach. The Data Science to Advance Women’s Health Fellowship brought together 20 early-career women researchers from West and Central Africa, each applying data science to pressing health challenges, from cervical cancer detection to maternal mental health. The DSAIL–Sunbird AI and Maseno–Sunbird AI fellowships advanced the frontiers of edge AI for biodiversity monitoring and automatic speech recognition for African languages respectively, demonstrating what is possible when local institutions collaborate with shared purpose.

The DSA Hackathon 2025 drew 1,757 participants across 431 teams from 45 African countries, perhaps our most vivid illustration yet that the appetite for African-led innovation is vast and growing. The winning projects, from AI-assisted breast cancer screening to Swahili speech recognition and civic legal chatbots, reflect the ingenuity and social conscience that define this community.

Our collaboration with Meta on the Llama Impact Grant attracted 1,299 applications from across the continent, a number that speaks not only to the quality of DSA’s convening power, but to the maturity of Africa’s AI ecosystem.

The five selected grantees, addressing literacy access, agricultural extension, reproductive health, chronic disease management, and African language inclusion, embody the kind of contextually grounded, socially purposeful AI that DSA has always championed.

The formalisation of the DSA Uganda Chapter, our first national chapter, marks another important step in building a decentralised, community-owned network. Together with our affiliated centres at DSAIL and MCAAI in Kenya, BUAIIR, Mak-AI, Sunbird AI, in Uganda and the Institute of Accountancy Arusha in Tanzania, we are steadily strengthening the regional infrastructure through which knowledge, mentorship, and opportunity can flow.

Reflecting on our first decade through the “10 at 10: Voices of DSA” series, what stands out is not the scale of our growth, but its character. DSA alumni are leading research at global technology companies, founding startups, shaping public policy, and, perhaps most meaningfully, returning to mentor the next generation. The community is self-sustaining not because of any single institution, but because of the hundreds of individuals who have made it their own.

None of this would be possible without our partners and funders — ARM, Google DeepMind, Google, Dendron Ventures, Meta, Boston University, and the Meridian Institute — whose sustained investment reflects a shared belief that African-led data science is not a development project, but a global scientific and social asset.

As we look ahead, we are more resolved than ever. The challenges of health, climate, agriculture, language, and equity that define life on this continent demand the best of data science. And the best of data science — rigorous, responsible, and rooted in community — is exactly what DSA exists to build. We are grateful to everyone who has been part of this journey, and we invite you to read on.

**Prof Ciira Maina**  
**Board Chair, Data Science Africa**



# 2025 at a Glance



## SUMMER SCHOOL & WORKSHOP — IBADAN, NIGERIA

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**351**

Participants

**20+**

Countries represented

**4**

Training tracks

**2**

Workshop days

**Theme:** *Responsible Data Science: A Practical Path for Sustainable Development*

[AI in practice\\*](#) [Responsible AI\\*](#) [Research skills & reproducibility\\*](#) [Emerging frontiers in AI\\*](#)

## HACKATHON 2025

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**1,757**

Participants

**431**

Teams

**45**

African countries

**11**

Finalists

**Theme:** *African problems, African data scientists, African data*

Top 3 projects invited to present at DSA Ibadan:

[MammoAI : breast cancer screening\\*](#) [ConnectEd Insights : school connectivity\\*](#) [Sema : Swahili speech recognition](#)

## META LLAMA IMPACT GRANT

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**1,299**

Applications received

**37**

Countries applied

**374**

Passed technical review

**5**

Grantees selected

Selected grantees:

[Easy Read Africa \(RW\)\\*](#) [PropelMapper \(SA\)\\*](#) [Upscale-AIRSHE \(UG\)\\*](#) [Alerah \(NG\)\\*](#) [Vambo Voice \(SA\)\\*](#)

## FELLOWSHIP PROGRAMMES

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<b>Women's Health Fellowship (DSAWH)</b> 20 early-career women researchers from Nigeria, Ghana, Cameroon & Benin working on cancer, maternal health and reproductive AI	<b>DSAIL × Sunbird AI</b> Edge AI for bird sound classification — ~5 MB model achieving up to 98% accuracy, deployed on Raspberry Pi in the field	<b>Maseno × Sunbird AI</b> ASR fine-tuning for African languages (Kikuyu, Dholuo, Kalenjin, Maasai & Somali) using Wav2Vec, MMS and Whisper
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## COMMUNITY & AFFILIATED CENTRES

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<b>DSA Uganda Chapter</b> Officially registered 10 March 2025 — DSA's first national chapter, piloting a decentralised community-led model	<b>DSAIL, Kenya</b> Hosted the Machine Learning Foundations Course with Prof Neil Lawrence from Cambridge University in September 2025	<b>IAA, Tanzania</b> Grant awarded to build a Swahili NLP agriculture chatbot for smallholder farmers
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## 10-YEAR ANNIVERSARY: 2015–2025

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### From one summer school to a continent-wide platform

Hundreds of researchers trained across dozens of countries · Alumni leading research at Google, Microsoft & African universities · Local labs, chapters & affiliated centres established continent-wide · “10 at 10: Voices of DSA” impact stories series published

## 2025 FUNDERS

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ARM · Google DeepMind · Google · Meta · Dendron Ventures · Boston University · Meridian Institute



# Capacity Development

# DSA 2025 Summer School and Workshop



351

Participants



20

Countries

The Data Science Africa (DSA) 2025 Ibadan Summer School and Workshop, hosted at the University of Ibadan from June 2–6, 2025, marked a flagship event of the continent’s data science community under the theme “Responsible Data Science: A Practical Path for Sustainable Development.” Bringing together **351 participants from over 20 countries**, the event reflected the growing scale, diversity, and maturity of the DSA network, with strong representation from academia, industry, and policy institutions across Africa and beyond.

The Summer School (June 2–4) delivered a comprehensive and practice-oriented training programme designed to strengthen both foundational understanding and advanced technical capability in data science and artificial intelligence. The curriculum was structured around four interconnected thematic streams.

The **AI in Practice** track focused on the application of machine learning and deep learning techniques to real-world problems. Participants explored **computer vision for image-based classification and detection tasks, automation pipelines for scalable data workflows, fraud and risk detection systems using statistical and machine learning models**, and practical deployment considerations for AI systems in low-resource environments. Emphasis was placed on translating algorithms into deployable solutions that can operate effectively in African contexts.



The **Responsible AI** track addressed the ethical, societal, and governance dimensions of artificial intelligence. Sessions on **generative AI and large language models** examined both opportunities and risks, including hallucination, bias, and data provenance challenges. **Federated learning** was introduced as a privacy-preserving approach to distributed model training, particularly relevant for sensitive domains such as health and finance. Additional discussions on **AI ethics, fairness, accountability, and transparency** encouraged participants to critically evaluate model design choices and their implications for equity and inclusion.

The **Research Skills and Reproducibility** track strengthened participants' ability to conduct robust and transparent scientific work. This included hands-on sessions on **version control using Git and GitHub, reproducible research workflows, collaborative coding practices, and experiment tracking**. Participants were also introduced to best practices in research documentation and open science, with a focus on improving the reliability and scalability of AI research outputs across institutions.

The **Emerging Frontiers in AI** track exposed participants to rapidly evolving areas shaping the future of the field. This included **natural language processing (NLP), including low-resource language modelling and translation systems; robotics and intelligent systems; and AI for Social Good applications spanning health, agriculture, and education.** Practical tutorials also explored **fine-tuning large language models, retrieval-augmented generation (RAG), and agentic AI systems,** highlighting how these tools can be adapted for African datasets and use cases.



Overall, the structured yet diverse programme ensured that participants were exposed not only to technical depth but also to the broader societal, ethical, and policy dimensions of AI.

Across all tracks, sessions were delivered through a blend of lectures, interactive coding labs, and guided tutorials led by experts from institutions such as Microsoft AI for Good Research Lab, University of Cambridge, Makerere University, and leading African research labs and industry partners. This mix of global expertise and local insight ensured that learning remained both cutting-edge and contextually grounded.

The Workshop (June 5) expanded the intellectual scope of the event into a multidisciplinary platform for applied research exchange. The programme was organised into thematic application areas, each showcasing how AI and data science are being used to address pressing development challenges. **AI for Agriculture** sessions explored crop disease detection using computer vision, soil and climate-based yield prediction models, drone imagery analytics for reforestation monitoring, and federated learning approaches for edge-based agricultural systems.



AI In health



AI for Climate  
and Energy



AI for Education  
& Finance



NLP &  
Generative AI

In **AI for Health**, presenters discussed machine learning applications for disease prediction and diagnosis, including models for **cervical cancer detection, Alzheimer’s disease prediction, tuberculosis screening, malaria risk forecasting, and multimorbidity risk stratification**. There was also significant focus on **clinical data gaps in African health systems and the integration of multimodal datasets for improved health outcomes**, alongside discussions on explainable AI in medical decision-making.

The **AI for Climate and Energy** track highlighted innovative applications such as **weather anomaly detection using unsupervised learning, climate policy simulation models, geospatial disaster analysis using media data, and AI-driven renewable energy credit verification systems**. These sessions underscored the role of data science in supporting climate resilience and sustainable energy transitions across Africa.

In **AI for Education and Finance**, contributors presented work on **large language model benchmarking for African educational contexts, institutional data systems for decision-making in tertiary education, automated transcription of court proceedings using self-supervised learning, and AI-enabled financial advisory tools aimed at democratizing access to investment knowledge**. These discussions emphasized the importance of building inclusive digital systems that respond to local needs.

The **Natural Language Processing and Generative AI** sessions showcased advances in **machine translation for low-resource African languages, sentiment analysis in politically sensitive contexts, tokenization methods for African languages, and evaluation frameworks for**

**culturally grounded language models.** A recurring theme was the challenge of ensuring linguistic inclusivity in global AI systems, particularly for underrepresented languages such as Yoruba, SiSwati, and Ehugbo.

Across all thematic areas, poster presentations and lightning talks provided additional depth, featuring work on **AI for aquaculture, smart transportation systems, financial inclusion tools, biomedical image analysis, power grid fault detection, and multilingual text-to-speech systems.** These contributed to a rich interdisciplinary exchange of ideas and highlighted the breadth of African-led innovation in AI.

Overall, the structured yet diverse programme ensured that participants were exposed not only to technical depth but also to the broader societal, ethical, and policy dimensions of AI. The integration of foundational training, applied research, and cross-sectoral dialogue made the DSA 2025 Ibadan a particularly rich learning environment and a strong demonstration of Africa's growing position in responsible data science.



# DSA Fellowships

## DSAIL and Sunbird AI

The DSAIL–Sunbird AI Fellowship Programme, implemented in Kampala Uganda, was a collaboration between the DSAIL team at Dedan Kimathi University led by Gabriel Kiarie and Sunbird AI’s Joel Muhanguzi. The project focused on advancing edge AI for biodiversity monitoring through bird sound classification in natural habitats.

The fellowship achieved two main outcomes. First, it optimised a bio-acoustic sensing pipeline for Raspberry Pi devices, improving power efficiency through successful deployment on a 32-bit operating system and producing updated open-source documentation and hardware recommendations. Second, it developed and deployed a lightweight machine learning model trained on approximately 1,300 audio samples to classify bird species in the Dedan Kimathi Wildlife Conservancy. The quantized model (≈5MB) achieved up to 98% accuracy and was successfully deployed on edge devices for real-time field testing and data collection.

Key outputs included a fully functional edge AI bio-acoustic sensor system, improved software/hardware optimisation for low-power deployment, and dissemination of results through conferences including Data Science Africa Nigeria 2025 and submission to Deep Learning Indaba 2025. While progress was strong, challenges remained around limited training data, model generalisability, and compatibility with high-performance computing environments.

Overall, the fellowship demonstrated the feasibility of deploying efficient edge AI systems for wildlife monitoring and laid the foundation for scaling the approach to additional species, improved datasets, and replication in Uganda using custom hardware designs.



## Sunbird AI and Maseno University Speech Technology

The visiting fellowship awarded to Cynthia Amol commenced in September 2025 as a hybrid collaboration between Maseno University's Maseno Centre for Applied Artificial Intelligence (MCAAI) and Sunbird AI, with a focus on advancing automatic speech recognition (ASR) for African languages.

The fellowship made early progress toward developing and fine-tuning ASR models using African Next Voices (AfriVoices) data, alongside building the technical foundations required for scalable multilingual speech systems. Key achievements during the reporting period included comprehensive cleaning and standardisation of the AfriVoices Kenya dataset and the establishment of core competencies in ASR pipelines, evaluation methods, and state-of-the-art modelling approaches such as Wav2Vec, MMS, and Whisper. The fellowship also laid critical groundwork for extending ASR capabilities to under-resourced African languages including Kikuyu, Dholuo, Kalenjin, Maasai, and Somali.



DSA  
Data Science Africa

## Data Science Advancing Women's Health

The Data Science to Advance Women's Health Fellowship (DSAWH) is a capacity-building initiative aimed at strengthening the pipeline of early-career women researchers applying data science, machine learning, and artificial intelligence to priority women's health challenges across Africa.

The programme will support up to 40 fellows across two cohorts (2025 and 2026), combining participation in the annual DSA Summer School and Workshop, an online scientific writing retreat, structured mentorship, and community-building activities. A central component of the fellowship is scientific writing support, where fellows were guided to develop their research into publishable manuscripts, strengthening their ability to translate analytical work into peer-reviewed scientific outputs.

The 2025 cohort focused on Western and Central Africa, bringing together 20 researchers from Nigeria, Ghana, Cameroon, and Benin across public health, biomedical sciences, epidemiology, nursing, microbiology, biostatistics, and computational science.

Their research spanned key women's health priorities, including cancer detection and treatment (cervical and breast cancer using AI and predictive models), reproductive and sexual health (STIs, menstrual disorders, and reproductive technologies), maternal and perinatal health (pregnancy complications, metabolic risks, and maternal mental health), and broader life-course issues such as menopause, alopecia, and access to sexual and reproductive health services. Several projects also applied advanced methods such as deep learning, graph neural networks, and multi-omics integration to address complex health challenges.

The programme also provided travel support and facilitation honoraria to ensure equitable participation at the DSA 2025 Summer School and Workshop and effective delivery, contributing to a growing network of women researchers advancing data-driven health solutions across Africa.

# Quantifying the Hidden Economic Cost of Maternal Mortality

*DSAWH Fellow Angela Esi Ackon, Published Research*



Beyond documenting costs, the study offers an important policy message: investments in maternal health are not only essential for saving lives but also make strong economic sense.

Maternal mortality is often measured in lives lost, but its consequences extend far beyond health indicators. Through the Data Science Africa (DSA) Advancing Women's Health Fellowship Programme 2025, fellow researcher Angela Esi Ackon contributed to a landmark scoping review that examined the economic burden of maternal mortality on households, communities, and national economies. Published in BMC Health Economics Review in 2026, the study titled "The economic burden of maternal mortality: a scoping review"<sup>1</sup> provides one of the most comprehensive syntheses

to date of how maternal deaths affect economic wellbeing across different contexts.

The review analyzed evidence from eight studies conducted across Africa, Asia, and North America, revealing that maternal mortality imposes substantial financial costs at both household and societal levels. Families that experience maternal deaths often face immediate medical expenses, funeral costs, reduced income, and increased debt burdens. In some settings, households affected by maternal mortality reported

<sup>1</sup> The economic burden of maternal mortality: a scoping review. BMC Health Economics Review <https://link.springer.com/article/10.1186/s13561-026-00746-8>

income declines of up to 32%, while healthcare and related costs consumed more than 30% of annual household expenditure.

The consequences extend beyond individual families. Several studies reviewed by the authors demonstrated that maternal mortality also imposes significant economic losses on national economies through reduced productivity and lost contributions to the workforce. Analyses from the WHO African Region estimated billions of dollars in lost economic output associated with maternal deaths, while broader studies in sub-Saharan Africa found strong negative relationships between maternal mortality rates and economic development.

Importantly, the review highlights that current estimates likely understate the true economic burden. Many studies focus primarily on direct costs and productivity losses while overlooking the long-term impacts on children, education, unpaid caregiving, household stability, and intergenerational wellbeing. The authors argue that these hidden consequences represent an important gap in current research and should be incorporated into future assessments.

Beyond documenting costs, the study offers an important policy message: investments in maternal health are not only essential for saving lives but also make strong economic sense. By preventing maternal deaths, countries can reduce financial hardship for families, protect productivity, and support broader social and economic development. The findings also strengthen the case for social protection mechanisms that help households manage the economic shocks associated with maternal complications and mortality.

This work exemplifies the objectives of the DSA Data Science Advancing Women's Health Fellowship Programme, which supports African women researchers in applying data science and evidence-based approaches to address critical women's health challenges. By illuminating the often-overlooked economic consequences of maternal mortality, the study provides policymakers, health systems, and development partners with evidence that can inform more effective investments in maternal health and contribute to achieving Sustainable Development Goal 3 on improving maternal survival and wellbeing.

# Understanding Menopause Through a Life-Course Lens: New Evidence from Nigeria

*DSAWH Fellow Ossai Onyinyechi Gift, Published Research*



The research found that reproductive experiences accumulated across a woman's life course play a significant role in determining when menopause occurs.

The transition to menopause is a significant stage in women's lives, yet evidence from African populations remains limited. Through the Data Science Africa (DSA) Data Science Advancing Women's Health (DSAWH) Fellowship Programme 2025, Fellow researcher Ossai Onyinyechi Gift contributed important new insights into how reproductive history influences the timing of menopause among Nigerian women, highlighting critical differences between urban and rural populations.

The research titled "Association between reproductive history and menopausal timing: exploring rural-urban differences in a cross-sectional survey" published in BMC Women's Health in 2026<sup>2</sup>, the study examined data from 294 menopausal women across Nigeria to explore how factors such as age at first menstruation, number of pregnancies, parity, breastfeeding practices, and contraceptive use shape menopausal timing. The findings revealed that while the average age at menopause was

<sup>2</sup> Association between reproductive history and menopausal timing: exploring rural-urban differences in a cross-sectional survey. BMC Women's Health

<https://link.springer.com/article/10.1186/s12905-026-04441-y#citeas>

approximately 50 years, important variations existed across residential settings. Women living in urban areas experienced menopause slightly earlier than their rural counterparts, reflecting differences in reproductive behaviour, education, healthcare access, and lifestyle factors.

The research found that reproductive experiences accumulated across a woman's life course play a significant role in determining when menopause occurs. Among urban women, earlier onset of menstruation and higher numbers of children were strongly associated with earlier menopause, while reproductive patterns among rural women showed different relationships, with the number of pregnancies influencing the likelihood of later menopause.

These findings are particularly important because both early and late menopause carry health implications. Early menopause has been linked to increased risks of cardiovascular disease, osteoporosis, and other chronic conditions, while later menopause is associated with elevated risks of certain cancers. Understanding the factors that influence menopausal

timing can therefore help healthcare providers identify women who may benefit from targeted preventive care and support.

Beyond its scientific contributions, the study demonstrates the value of data-driven approaches for addressing women's health challenges in Africa. By uncovering how reproductive histories intersect with social and geographic inequalities, the research highlights the need for context-specific health interventions that recognize the diverse experiences of women across different communities.

The work exemplifies the goals of the Data Science Advancing Women's Health Fellowship Programme: equipping African researchers with data science skills, mentorship, and collaborative opportunities to generate locally relevant evidence that informs policy and improves health outcomes. As African countries seek to strengthen women's health services across the life course, studies such as this provide an important foundation for designing more equitable and responsive healthcare systems.

# Research and Innovation





## DSA Affiliated Centres

### Machine Learning Foundations Course (MLFC) at DSAIL

The Centre for Data Science and Artificial Intelligence (DSAIL), Dedan Kimathi University, Nyeri, Kenya, a Data Science Africa (DSA) affiliated centre, hosted the Machine Learning Foundations Course (MLFC) from 1st to 24th September 2025 . Facilitated by Prof. Neil Lawrence from the University of Cambridge, the course formed part of a structured training pathway designed to strengthen foundational competence in machine learning, data science, and probabilistic reasoning for early-career researchers and practitioners within the DSA ecosystem.

The programme was designed to prepare participants with core knowledge in probability and linear algebra to progress into advanced Cambridge-level machine learning and data science courses. It introduced key concepts in data science pipelines, statistical modelling, and machine learning foundations, while also distinguishing data science from closely related

fields such as artificial intelligence and statistics. Participants were guided through how data-driven inquiry is structured in practice, including how uncertainty is handled in modelling and decision-making, particularly in real-world contexts where data may be scarce or noisy.

The course further explored applied themes such as machine learning in the physical world, emphasising challenges associated with real-world deployment, including uncertainty, limited data availability, and high-stakes decision environments. Advanced topics, including deep neural networks and applied case studies, were introduced through guest lectures showcasing real-world applications of machine learning. These sessions also provided a bridge between theory and practice, highlighting open challenges that could inform future research and project development.

Through this intensive programme, DSAIL strengthened its role as a regional hub for advanced machine learning training, enabling participants to build strong conceptual foundations while engaging with global academic expertise.

Access the course materials here: <https://mlatcl.github.io/mlfc/>

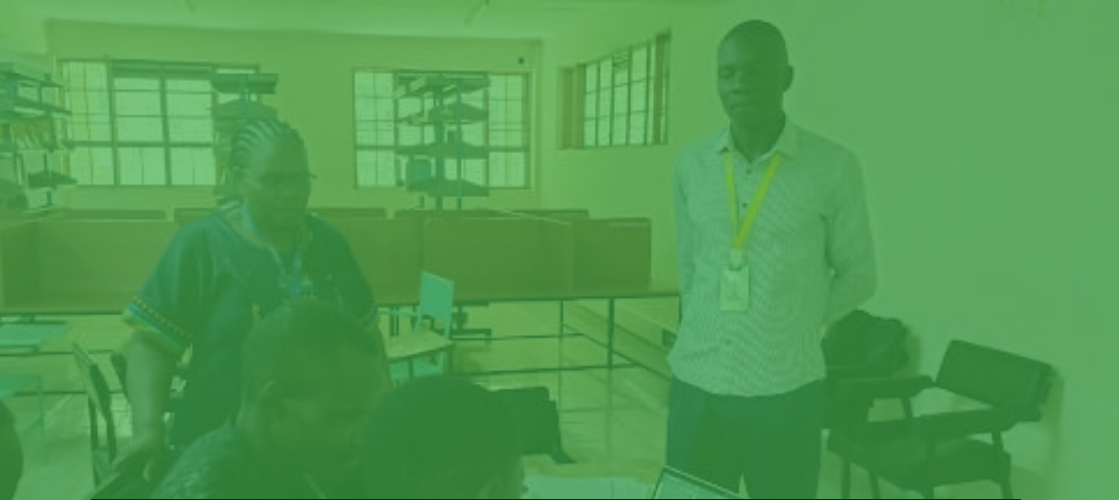


## Institute of Accountancy Arusha (IAA)

The Data Science and Artificial Intelligence (DSAI) Research Community at the Institute of Accountancy Arusha (IAA) is an emerging DSA affiliated centre that brings together staff and students with a shared interest in developing data science and AI solutions to address local and regional development challenges. The community was initiated informally in 2022, inspired by the Data Science Africa workshop and summer school hosted at IAA, and has since grown to include four staff members and nine students who have actively participated in DSA events in Kigali (2023) and Nyeri (2024). With strong institutional backing, the community is currently formalising the IAA DSA Lab as an affiliated centre, strengthening its role as a regional hub for capacity building, applied research, and student mentorship in data science and AI.

As part of its inaugural research agenda, IAA has been granted funding of USD 8,000 to implement a Swahili-language Natural Language Processing (NLP) question-and-answer chatbot for agricultural knowledge dissemination in Tanzania. The project will involve co-creation of an agriculture Q&A dataset with farmers and agricultural experts, alongside the development of an NLP model tailored to local language and contextual needs. The chatbot is expected to improve access to agricultural extension services and timely farming information, addressing critical knowledge gaps that constrain productivity in rural communities. The initiative will also support capacity building through the recruitment of two master's students as research interns, who will contribute to dataset development, model training, and system deployment while receiving structured mentorship and training.

The funding will support student stipends, data collection and annotation, chatbot development, administrative costs, dissemination of results, and community outreach activities, including regular student meetups to strengthen data science skills within the IAA ecosystem. Through this initiative, the DSAI Research Community is consolidating its position as a new DSA-affiliated centre advancing locally grounded AI research, capacity building, and applied innovation in agriculture and language technologies.



## Maseno Centre for Applied Artificial Intelligence (MCAAI)

In 2025, the Maseno Centre for Applied Artificial Intelligence (MCAAI) of the Maseno University, established with support from DSA, made significant progress in building AI research capacity and developing locally relevant technologies. DSA's support enabled the establishment of a dedicated physical research laboratory at Maseno University, hosted within the University's new library, and supported two MSc students working full-time on AI research projects through fee support and research funding. The centre successfully advanced research on multilingual machine translation and Kenyan Sign Language (KSL) technologies, developing an AI-powered platform capable of translating between English, Kiswahili, indigenous Kenyan languages, and KSL. The project conducted extensive classroom and field evaluations with special needs educators and learners from schools and vocational institutions for the deaf and hard of hearing, helping validate assistive technologies designed to improve accessibility and educational inclusion. Building on these achievements, MCAAI also compiled substantial language resources, including approximately 500 hours of transcribed speech data for five Kenyan languages and parallel multilingual text corpora, laying the foundation for future work in automatic speech recognition, speech translation, and open-source language technologies for underrepresented African languages.

## DSA Hackathon

The Data Science Africa (DSA) Hackathon 2025, convened under the theme “African Problems, African Data Scientists, African Data,” provided a continent-wide platform for data scientists to collaboratively design and prototype solutions to pressing development challenges using locally generated datasets. Launched in December 2024, and coordinated within the ecosystem of Data Science Africa, the hackathon aimed to strengthen intra-African collaboration, promote the use of African data resources, and accelerate innovation across sectors including agriculture, health, climate change, education, governance, and business.

The hackathon attracted strong continental participation, with 431 teams comprising 1,757 participants from 45 African countries. The competition proceeded through structured stages, including registration, interim checkpoint reviews, and final project evaluations, culminating in final presentations in May 2025. A total of 11 teams advanced to the final stage, where they demonstrated high-impact, context-aware data science solutions addressing real-world African challenges.

Final-stage projects showcased a diverse range of innovations. In health, MammoAI developed an AI-assisted breast cancer screening tool using medical imaging data sourced from African health systems, aiming to improve early detection. In education, ConnectEd Insights applied machine learning and geospatial analysis to optimise school connectivity and learning outcomes in underserved regions. In language and digital inclusion, Sema developed a Swahili–English speech recognition and translation platform to enhance accessibility for African language speakers. In governance and civic technology, the Naija LAW Assistant leveraged Nigerian legal texts to build a chatbot supporting citizen awareness of legal rights and anti-corruption efforts. In language technology research, the Yoruba LLM from Scratch project explored the development of a large language model trained entirely on Yoruba-language corpora, advancing efforts in African language AI.

Based on their innovation, technical execution, and societal relevance, MammoAI, ConnectEd Insights, and Sema were selected for further support and invited to present at DSA 2025 in Ibadan, Nigeria, where they engaged with the broader African data science community.

Participant feedback highlighted both the strengths and constraints of the hackathon model. While participants valued the opportunity for crosscontinental collaboration and real-world problem solving, key challenges included limited access to high-quality and up-to-date datasets, constrained computing resources, and uneven access to mentorship and technical guidance. Additional gaps were identified in areas such as ethical data use, solution deployment pathways, and project sustainability.

Overall, the DSA Hackathon 2025 reinforced the importance of locally grounded, collaborative innovation ecosystems for advancing data science in Africa. It demonstrated the potential of African-led problem solving while also underscoring the need for strengthened data infrastructure, mentorship, and sustained support mechanisms to scale impactful solutions across the continent.





# Community & Ecosystem Development

# DSA Uganda Chapter

In line with its commitment to strengthening locally anchored data science ecosystems, Data Science Africa (DSA) continued to deepen regional engagement through the formalisation of the DSA Uganda Chapter, initially launched in 2022 and officially registered on 10 March 2025. As DSA's first pilot national chapter, the Uganda Chapter represents a significant milestone in operationalising a more decentralised, community-driven model for collaboration, peer learning, and knowledge exchange among data science practitioners. It serves as a platform to connect stakeholders across academia, government, industry, civil society, and international organisations, with a shared commitment to advancing the use of data science for social good and contributing to Uganda's national development priorities, including the NDP III framework.

The Chapter's mission is to foster an inclusive and vibrant network of data scientists, enthusiasts, and institutions, while strengthening national capacity through awareness-building, skills development, and access to opportunities. Its core objectives include creating a forum for cross-sector engagement; expanding access to data science resources such as training, jobs, and funding; and contributing to an enabling policy and regulatory environment, particularly in areas such as data governance, privacy, access, and ethical AI. Through these efforts, the Chapter is positioning itself as both a technical and policy interlocutor within Uganda's evolving digital ecosystem.



In 2025, the Uganda Chapter advanced a robust programme of activities designed to build capacity and catalyse collaboration. These include regular meet-ups and convenings on topical issues, targeted training programmes for students and early-career professionals, hackathons and training-of-trainers initiatives, as well as grant-writing and research dissemination workshops.

The Chapter also prioritises stakeholder engagement through collaborative project design and implementation, alongside plans to produce an annual “State of Data Science in Uganda” report. By embedding these activities within a locally led structure, the Uganda Chapter provides a scalable model for future DSA country chapters, reinforcing the organisation’s broader vision of enabling data-driven solutions to real-world challenges across Africa. continental collaboration and real-world problem solving, key challenges included limited access to high-quality and up-to-date datasets, constrained computing resources, and uneven access to mentorship and technical guidance. Additional gaps were identified in areas such as ethical data use, solution deployment pathways, and project sustainability.





## DSA's 10 year Anniversary, 2015 to 2025

Over its first decade, Data Science Africa has evolved from a small summer school into a continent-wide platform for advancing data science and artificial intelligence capacity.

Across this period, DSA has trained hundreds of researchers, convened participants from dozens of African countries, and supported a growing portfolio of fellowships, research grants, and collaborative projects. Its impact has spanned key sectors including health, agriculture, climate science, education, and governance, while fostering a diverse, multidisciplinary community of practitioners from academia, industry, government, and civil society.

As DSA marked its 10th anniversary, the “10 at 10: Voices of DSA” series offered a people-centred reflection of this journey, highlighting alumni whose experiences illustrated the depth and breadth of the organisation’s influence. These profiles collectively demonstrated how DSA functioned as a catalyst for both individual and systemic transformation. For many participants, DSA represented their first exposure to applied research, interdisciplinary collaboration, and international networks. Through summer schools, workshops, hackathons, and research programmes, participants gained not only technical skills in machine learning, statistics, and data analysis, but also access to mentorship, peer learning, and opportunities for publication and career advancement.

DSA alumni have progressed into a wide range of roles: leading research initiatives in global technology companies such as Google Research and Microsoft; founding startups and innovation hubs; contributing to public policy and data governance frameworks; and building academic careers across African and international universities. Their work addresses critical challenges such as disease detection, weather forecasting, agricultural productivity, language technologies, and digital inclusion, demonstrating the practical application of AI in African contexts.

The narratives also underscored the importance of community as a defining feature of DSA's model. Participants consistently highlighted how networks formed through DSA enabled collaboration across countries, disciplines, and career stages, often extending well beyond individual events. Many alumni transitioned into mentorship and leadership roles, contributing as trainers, organisers, and collaborators in subsequent DSA programs. This "train-the-trainer" dynamic strengthened local ecosystems and ensured continuity, with early participants helping to establish new research groups, local labs, and affiliated centres across the continent.

The stories further reflected DSA's role in promoting inclusion, particularly in supporting women in data science and creating pathways for underrepresented groups to engage in AI research and innovation.

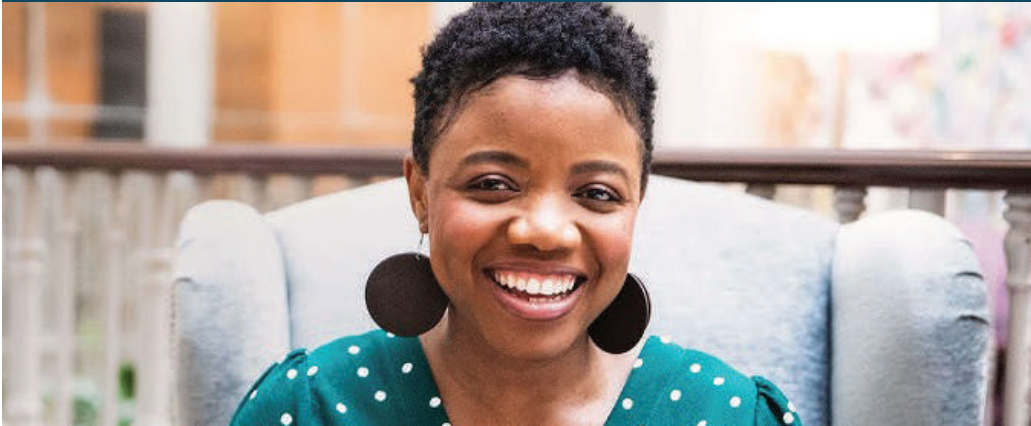
Beyond individual trajectories, the "10 at 10" profiles illustrated DSA's broader institutional contribution to shaping Africa's AI landscape. DSA has helped to reduce barriers to entry into advanced research by providing locally accessible platforms for learning, experimentation, and dissemination. DSA has also contributed to shifting perceptions about where high-quality AI research can be conducted, demonstrating that globally relevant innovation can emerge from African institutions and be driven by African researchers. In doing so, DSA has strengthened linkages between local problem contexts and global research agendas, positioning African data scientists as both contributors to and leaders within the international AI community.

A decade on, these voices reflect an ecosystem that has matured into a self-sustaining, distributed network of talent, mentorship, and collaboration. DSA's legacy is evident not only in the achievements of its alumni, but in the enduring structures of knowledge exchange, community support, and locally grounded innovation that continue to expand across the continent.



# Advancing Accountable AI for Global Health:

*Lessons from Prof. Elaine Nsoesie, DSA Board Member*



As artificial intelligence becomes increasingly embedded in healthcare systems worldwide, ensuring that these technologies serve all populations fairly has become a critical challenge. Few researchers have contributed more to this conversation than Prof. Elaine Nsoesie, a computational epidemiologist at Boston University School of Public Health and a 2025 Mozilla Rise25 honouree<sup>3</sup>.

Prof. Nsoesie's work focuses on understanding how biases in health data can lead to inequitable outcomes when AI systems are deployed in clinical and public health settings. Her research demonstrates that health datasets often reflect long-standing disparities in access to healthcare, resulting in the underrepresentation of marginalized populations. When machine learning models are trained on such datasets, they risk reproducing and amplifying

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<sup>3</sup> <https://www.youtube.com/watch?v=V-fLcyD6ssE>

understood and managed. Rather than treating algorithmic outputs as definitive answers, she advocates viewing them as starting points for further investigation and validation.

Her contributions are especially relevant in global health contexts, where AI tools developed in high-income countries are increasingly being adopted in low- and middle-income settings. Prof. Nsoesie highlights the risks of deploying models trained in one environment without adequate adaptation to local populations, disease patterns, and healthcare systems. She advocates for meaningful local participation in the design, validation, and governance of AI technologies to ensure they remain relevant and trustworthy.

Equally important is her commitment to public engagement. Through policy

advocacy, community partnerships, and accessible communication, Prof. Nsoesie works to ensure that evidence about algorithmic bias reaches decision-makers, healthcare providers, and affected communities.

Her work demonstrates that responsible AI requires not only technical excellence but also transparency, accountability, and inclusive governance.

For Data Science Africa, Prof. Nsoesie's contributions offer an important reminder that data science must be guided by both innovation and equity.

As AI adoption accelerates across the continent, building systems that are fair, transparent, and responsive to local realities will be essential for achieving meaningful and sustainable impact.



**For Data Science Africa, Prof. Nsoesie's contributions offer an important reminder that data science must be guided by both innovation and equity.**





# Partnerships and Grants



## Meta's Llama Impact Grant

In 2025, Data Science Africa (DSA), in partnership with Meta, co-implemented the Llama Impact Grant for Startups and Researchers Program, a continent-wide initiative aimed at accelerating socially impactful applications of the Llama 3.3. Launched in March 2025, the programme sought to identify and support innovative African-led solutions in priority sectors including health, science, and agriculture. The call for applications, open from 19 March to 18 April 2025, attracted an overwhelming response, with 1,299 submissions received from across Africa—demonstrating both the growing maturity of the AI ecosystem on the continent and strong interest in leveraging open-source large language models for local problem-solving.

The evaluation process was conducted through a rigorous, multi-stage review led by DSA's technical team and Board. An initial eligibility and relevance screening assessed compliance with core criteria, including demonstrable use of Llama 3.3, clarity of the proposed application, and supporting materials such as prototypes or demos. Of the total submissions, 374 proposals from 37 countries met these baseline requirements and progressed to technical review. These proposals spanned startups, individual researchers, and laboratories, reflecting the diversity of Africa's innovation landscape. Subsequent evaluation focused on key dimensions such as potential for impact and scalability, team expertise, ethical considerations in product development, and feasibility of implementation within proposed budgets and timelines. This process resulted in a shortlist of 36 high-potential proposals, from which the top 10 were selected for final consideration.

The shortlisted projects highlight the breadth and relevance of AI innovation emerging from the continent, with applications ranging from AI-enabled healthcare diagnostics and last-mile health service delivery, to agricultural intelligence, education access, and preservation of African languages. Geographically, the pipeline demonstrated strong representation from countries such as Nigeria, Kenya, Rwanda, Uganda, and South Africa, while also including contributions from a wide range of other African nations. Final selection of the top five grantees was undertaken by Meta following due diligence. Beyond the immediate objective of funding promising solutions, the programme has strengthened DSA's role as a convener and enabler of Africa's AI ecosystem—supporting talent discovery, fostering innovation pipelines, and advancing the use of cutting-edge AI technologies to address context-specific challenges at scale.

In 2025, the Llama Impact Grant programme culminated in the selection of five high-impact African-led projects, showcasing the diversity, depth, and societal relevance of innovation across the continent using Llama models. The selected grantees span multiple sectors and geographies, each addressing critical development challenges through contextually grounded AI applications. *Easy Read Africa* (Rwanda), led by the MbazaNLP community, focuses on bridging literacy and cognitive accessibility gaps by leveraging Llama and multilingual models to simplify complex texts, integrate visual aids, and expand access to essential information such as healthcare and civic services for low-literacy and neurodiverse populations. In the





agricultural domain, *PropelMapper* (South Africa) enhances the efficiency of extension services by transforming unstructured, voice-based field notes into structured, geospatial insights, enabling advisors to better support smallholder farmers and improve productivity.

In the health sector, *Upscale-AiRSHE* (Uganda), led by researchers at Makerere University, builds on an existing AI-powered adolescent education platform to deliver culturally relevant, multimodal sexual and reproductive health content, co-designed with communities to ensure inclusivity, safety, and real-world impact. Similarly, *Alerah* (Nigeria), implemented by Radease, addresses the growing burden of chronic diseases by providing an AI-enabled platform for early detection, continuous monitoring, and personalized care, delivered through accessible mobile and messaging interfaces in multiple local languages. Complementing these is *Vambo Voice* (South Africa), which tackles digital exclusion by developing conversational AI systems in widely spoken but underrepresented African languages such as Kiswahili, isiZulu, and Shona, thereby expanding access to education, public services, and information for millions of users.

Collectively, these projects demonstrate strong alignment with priorities such as health equity, food security, education access, and digital inclusion. They also highlight key characteristics of Africa's emerging AI ecosystem: a focus on real-world impact, the integration of local languages and contexts, and the use of open, adaptable technologies to overcome infrastructure constraints. Through supporting these grantees, Data Science Africa continues to play a pivotal role in identifying, nurturing, and scaling African innovation, while contributing to a more inclusive and globally representative AI landscape.

# Building Africa's AI Future Through Collaboration and Capacity Development

*Insights from Prof. Ciira Maina, DSA Board Chair*



As artificial intelligence reshapes economies and societies around the world, ensuring equitable access to AI resources, expertise, and infrastructure has become a pressing global challenge. For Professor Ciira wa Maina, Chair of Data Science Africa (DSA) and Associate Professor at Dedan Kimathi University of Technology, the solution lies not in opposing major technology companies, but in building a healthy and inclusive AI ecosystem that enables innovation to flourish everywhere.<sup>4</sup>

Speaking in an interview, “Big Tech is not the problem” with ETH Zurich in December 2024, Prof. Maina reflected on the growing importance of international partnerships in addressing global disparities in AI research and development. As Chair of DSA, he highlighted the organization’s role as a founding member of the International Computation and AI Network (ICAIN), a global initiative launched at the World Economic Forum in Davos to democratize access to artificial intelligence and advanced computing resources.

<sup>4</sup> <https://ethz.ch/en/news-and-events/eth-news/news/2024/12/big-tech-is-not-the-problem.html>

For many researchers across Africa, access to high-performance computing remains a significant barrier to participation in cutting-edge AI research. Through ICAIN, DSA members gain access to expertise, infrastructure, and collaborative opportunities with institutions such as the Swiss National Supercomputing Centre (CSCS), helping to strengthen research capacity across the continent.

Prof. Maina emphasized that while concerns about the concentration of AI resources among large technology companies are valid, the broader challenge is creating an ecosystem that supports diverse participation. “For AI to be fair and inclusive, it

needs a healthy ecosystem, not a single colossal organism,” he observed. In this vision, international cooperation, open research networks, and shared infrastructure are essential ingredients for a more balanced global AI landscape.

Since its founding in 2015, Data Science Africa has worked to build that ecosystem. Through training programs, workshops, research support, and community-building activities, DSA connects data scientists, students, researchers, and industry partners across Africa. The organization’s mission is to harness data science and artificial intelligence to address challenges that are particularly relevant to African communities.



**For AI to be fair and inclusive, it needs a healthy ecosystem, not a single colossal organism.**

According to Prof. Maina, many of the continent's most pressing challenges require locally developed solutions. "If we have a problem that is unique to the African context, we must solve it ourselves," he noted. This philosophy guides much of DSA's work, from health and environmental applications to language technologies and agriculture.

Agriculture remains one of the most important areas of focus. Through ICAIN, DSA is supporting pilot projects aimed at improving weather forecasting and helping farmers detect crop diseases using affordable AI-enabled tools. These initiatives address issues that have direct implications for food security and livelihoods across the continent. In the case of cassava, one of Africa's most important staple crops, disease outbreaks can devastate harvests, threatening both household incomes and national food systems. Early detection technologies have the potential to significantly reduce such losses.

Beyond technological innovation, Prof. Maina stressed the importance of investing in people. One of the most valuable outcomes of collaborative research initiatives

is the development of human capacity. Students involved in these projects gain experience in advanced computing, publish research, attend international conferences, and contribute to solving real-world problems. These experiences help cultivate the next generation of African AI researchers and innovators.

Addressing concerns about talent migration, Prof. Maina advocates for expanding opportunities rather than restricting mobility. By training larger numbers of skilled professionals and strengthening local institutions, African countries can create environments where talented individuals have meaningful opportunities to contribute, whether they choose to remain at home or gain experience abroad.

The interview also underscored the mutual benefits of global collaboration. Through partnerships established under ICAIN, researchers in Africa and Europe have discovered shared challenges and opportunities, from multilingual AI systems to high-performance computing. Such collaborations demonstrate that innovation is strengthened when diverse perspectives and experiences come together.



As Data Science Africa continues to expand its training, research, and partnership activities, Prof. Maina's vision remains clear: building sustainable AI capacity requires investment in communities, institutions, and international cooperation. By strengthening

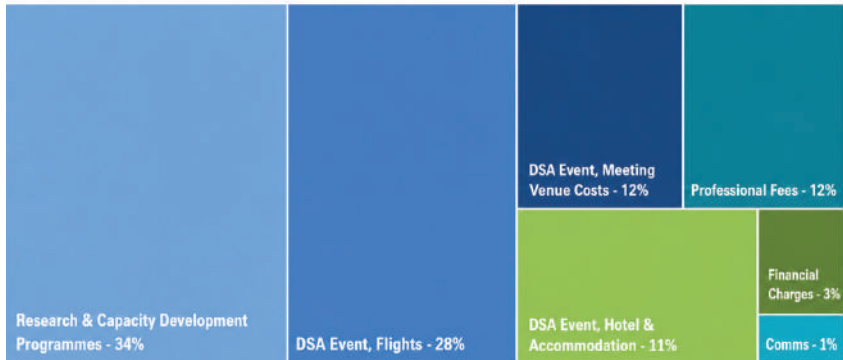
the foundations of the African AI ecosystem, DSA is helping ensure that the continent is not merely a consumer of emerging technologies, but an active contributor to shaping their future.



# DSA Governance

# Expenses Overview

## 2025



- DSA Event, Flights - 28%
- DSA Event, Hotel & Accommodation - 11%
- Comms - 1%
- DSA Event, Meeting Venue Costs - 12%
- Financial Charges - 3%
- Professional Fees - 12%
- Research & Capacity Development Programmes - 34%

## 2024



- DSA Event - Flights - 23%
- DSA Event - Hotel & Accommodation - 14%
- Comms - 1%
- DSA Event - Meeting Venue Costs - 10%
- Bank Charges - 1%
- Professional Fees - 9%
- Research & Capacity Development Programmes - 42%



## DSA Governance

### DSA Members and Service Providers

#### DSA Founding Board Members

- Prof Ciira Maina - Board Chair, 2015 to date
- Dr Dina Machuve - Board Treasurer, 2015 to date
- Dr Martin Mubangizi - Board Secretary, 2015 to date
- Dr Ernest Mwebaze - Board Member, 2015 to date
- Dr Billy Okal - Board Member, 2015 to date

#### DSA Advisory Board Members

- Prof Neil Lawrence – 2015 to date
- Prof John Quinn – 2015 to date

#### DSA Members Since 2023

- Prof Elaine Nsoesie - Board Member, 2023 to date
- Dr Joyce Nabende - Board Member, 2023 to date
- Mourine Amutorine - Board Member, 2023 to date
- Dr Charles Saidu - Board Member, 2023 to date
- Dr Moses Thiga - Board Member, 2023 to date
- Prestone Adie - Board Member, 2023 to date

#### DSA outsources operations to the following Service Providers:

- Graphic Design and Digital Media Service to the Consultant - Raymond Muhindo.
- Website Redesign, Development and Maintenance - Services to Infinitech Systems.
- Administration, Statutory Compliance and Grant - Management to Arborescence.

# Acknowledgments

DSA extends its sincere appreciation to the entire DSA community, strategic partners and board members, whose enthusiastic engagement, generous contributions and guidance have been instrumental in advancing our mission.

Special thanks go to funders whose financial support has enabled critical research and capacity-building initiatives across Africa. We also recognise the invaluable contributions of universities, affiliated centres, and local chapters that have collaborated with us in training, mentorship, and research advancement.

Furthermore, we acknowledge the dedicated efforts of our researchers, fellows, and volunteers, whose hard work and innovation continue to shape the future of data science on the continent.

DSA remains deeply grateful for the growing global network of professionals and organisations that share our vision of a future where African problems are solved by Africans through data-driven approaches.



## DSA Partners in 2025





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