Report on AFRICAI Sponsorship at MICCAI 2024

27TH INTERNATIONAL CONFERENCE ON MEDICAL IMAGE COMPUTING AND COMPUTER ASSISTED INTERVENTION
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PALMERAIE ROTANA RESORT
MARRAKESH / MOROCCO

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Introduction

This document aims to provide a detailed report on the impact of the sponsors' generous contributions to AFRICAI, which provided financial support that enabled African researchers to attend the MICCAI 2024 conference and present their research results on AI for medical imaging in low-resource settings.

MICCAI 2024 was a landmark event as it marked the first time the conference was hosted in Africa. This milestone represents a significant step toward fostering a more inclusive and diverse global scientific community in the field of AI in medical imaging.

Sponsorship for African participants was enabled thanks to the generosity of the MICCAI Society, individual donors from the MICCAI community, and financial support from non-commercial organisations and AFRICAI sponsors. The sponsors included:

- The Radiological Society of North America
- Global Health Labs
- The International Society of Radiology
- The MICCAI Society
- Children's National Hospital
- Artificial Intelligence in Medicine Lab - Universitat de Barcelona
- Pasqual Maragall Foundation
- Pierre Fabre Foundation
- Computer Assisted Medical Interventions Labex
- Multidisciplinary Institute in Artificial Intelligence Grenoble Alpes
- Delft Imaging
- Frugal Biomedical Innovation Program - Western University
- Medtronic
- Cadi Ayyad University
- National Center for Scientific and Technical Research - Morocco

Thanks to the generous contributions of the sponsors, a total amount of 134,735.36 euros was raised to support African grantees. This impactful funding was strategically allocated to cover essential expenses, including conference registration fees, MICCAI membership, lodging, and travel cost. By alleviating these financial barriers, the sponsorship enabled talented researchers from across Africa to fully participate in MICCAI 2024, ensuring their voices and contributions were represented on a global stage. This support not only empowered the grantees to share their ground-breaking work but also fostered inclusivity and diversity within the conference, reinforcing the importance of equitable access to academic opportunities.

Key Achievements thanks to the sponsors:

1. Supporting Inclusion and Accessibility:

Thanks to the sponsors, it has been possible to support **52 grants for African participants**, making MICCAI's first conference in Africa its most inclusive and diverse event so far. The travel grantees received financial assistance to help cover conference registration, lodging, and travel costs. The geographic distribution of the grantees is shown below:

Country	Nº of grantees
Egypt	6
Benin	1
Ethiopia	3
Morocco	3
Ghana	2
Kenya	4
Algeria	1
Cameroon	1
Uganda	1
Senegal	5
South Africa	1
Tanzania	3
Tunisia	5
Zambia	2
Nigeria	10
Mauritania	1
Zimbabwe	1
Rwanda	1

List of grantees funded:

- *Dong Zhang*
- *Raymond Confidence*
- *Udunna Anazodo*
- *Aondona, Iorumbur*
- *Atabonfack, Bernes*
- *Mohannad Barakat*
- *Noha Magdy*
- *Ugumba Kwikima*
- *YuFei (Teresa) Zhu*
- *Adegboyega Adebayo*
- *Freedmore Sidume*
- *Pratibha Kulung*
- *Kangwa Nkonde*
- *Patience Bwire*
- *Oumayma Soula*
- *Yewande Gbadamosi*
- *Philip Nkwam*
- *Amal Saleh Nour*
- *Chantelle Amoako-Atta*
- *John Othieno*
- *Henry Sanni*
- *Chinasa Kalawio*
- *Ada Emegaoakor*
- *Mahmoud Gamal*
- *Kpêtchéhoué Merveille Santi Zinsou*
- *Oyindamola Olatunji*
- *Abbas Rabiu*

- *Abdulganiyu Jimoh*
- *Mizanu Degu*
- *Montassar Ben Dhifallah*
- *Toufiq Musah*
- *Malaizyo Gabriel Muzumala*
- *Mayssa Soussia*
- *Mariem Touihri*
- *Abdourahmane Balde*
- *Wahabou Kassim Taba Chabi*
- *Cheikh Yakhoub Maas*
- *Assala Benmalek*
- *Houcemeddine Turki*
- *Mengistu Tasew*
- *Fatou Bintou Ndiaye*
- *Mohamed Ghonim*
- *Gbenga Oderinde*
- *Andrew Shawa*
- *Aya Gamal*
- *Sahar Selim Soussa*
- *Catherine Namayega*
- *Hasnae Zerouaoui*
- *Deogratias Mzurikwao*
- *Gerald Odong*
- *Asmae Zanbouaa*
- *Mamadou Bousso*
- *Patrick Kulundu*

African grantees at the session "From MICCAI to AFRICAI", Wednesday 9 October 2024

In addition, thanks to the sponsors, the conference was able to invite an additional 32 local volunteers from Morocco. These volunteers, primarily students, had the opportunity to present their work, receive valuable feedback, and attend several workshops. This experience not only enriched their academic and professional development but also contributed significantly to the smooth execution of the event, fostering a collaborative and inclusive environment.

- o *Anneliese Riess*
- o *Asma Zizaan*
- o *Aya Ennair*
- o *Baba Naima*
- o *Bakass Assiya*
- o *Christianah Titilope Oyewale*
- o *Daniel Lang*
- o *Doubabi Zakaria*
- o *Emily Chan*
- o *Fatima Ez-Zahraa Bazay*
- o *Firdaous Ait Mohamed*
- o *Firdawse Guerbouzi*
- o *Fouzia El Abassi*
- o *Hajar Ouhmidou*
- o *Hamza Bouzid*
- o *Houda El Mohamadi*

- o *Ibtissam CHAFIA*
- o *Iken Fatima*
- o *Imane Araf*
- o *Khaoula Alaoui Belghiti*
- o *Laghdaf Khaoula*
- o *Laura Alexandra Daza Barragan*
- o *Lhasnaoui Chaima*
- o *Naim Kawtar*
- o *Omaima Bellakhdar*
- o *Oussahi Salma*
- o *Oussama LACHIHAB*
- o *Rafiq Imane*
- o *Rguibi Zakaria*
- o *Sanaa Hmaida*
- o *Sofia Bourhim*
- o *Youssef Al Mouatamid*

Local volunteers from Morocco at the reception area

2. Research Highlights:

Presentations:

Papers by African researchers showcased new AI solutions tailored for resource-limited settings. Below is a list of some of the papers presented at MICCAI by the African grantees funded by the sponsors:

PAPERS PRESENTED BY GRANTEES

- "Capturing Complexity of Foot Arch Bones: Evaluation of a Statistical Modelling Framework for Learning Shape, Pose & Intensity Features in a Continuous Domain" at the MICCAI Meets Africa Workshop by **Catherine Namayega (South Africa)**

- "Automatic Mandibular Semantic Segmentation of Teeth Pulp Cavity and Root Canals, and Inferior Alveolar Nerve on Pulpy3D Dataset" at the main conference by **Mahmoud Gamal (Egypt)**

- "AMONuSeg: A Histological Dataset for African Multi-Organ Nuclei Semantic Segmentation" by **Gbenga Oderinde (Nigeria)**

- "Deep Feature Fusion Framework for Alzheimer's Disease Staging using Neuroimaging Modalities" at the MICCAI Student Board EMERGE workshop by **Sahar Selim (Egypt)**

- "Explainable Few-Shot Learning for Multiple Sclerosis Detection in Low-Data Regime" at the MICCAI Student Board EMERGE workshop by **Sahar Selim (Egypt)**

- "Spatial Attention-Enhanced Diffusion Model for Multiple Sclerosis MRI Synthesis" at the MICCAI Meets Africa workshop by **Sahar Selim (Egypt)** → **Best paper award**

- "Generative Hypergraph Neural Network for Multiview Brain Connectivity Fusion" at the MICCAI PRIME Workshop by **Mayssa Soussia (Tunisia)**

- "Evaluating Perceived Workload, Usability and Usefulness of Artificial Intelligence Systems in Low-Resource Settings: Semiautomated Classification and Detection of Community Acquired Pneumonia" at the Applications of Medical AI by **Malaizyo Muzumala (Zambia)** → **Best Student Paper Award**

- "Towards Rapid Mycetoma Species Diagnosis: A Deep Learning Approach for Stain-Invariant Classification on H&E Images from Senegal" at the main conference by **Kpêtchéhoué Merveille Zinsou (Senegal)**

- "Automated Segmentation of Ischemic Stroke Lesions in Non-Contrast Computed Tomography Images for Enhanced Treatment and Prognosis" at the MICCAI Meets Africa Workshop by **Toufiq Musah (Ghana)**

- "Glioma segmentation in North Western Nigeria" at the MICCAI BRAIN TUMOUR SEGMENTATION (BraTS) by **Abbas Rabiu (Nigeria)**

- "Optimized Brain Tumor Segmentation for resource constrained settings: VGG-Infused U-Net Approach" at MICCAI meets AFRICA by **Mizanu Degu (Ethiopia)**

- "Explainable Few-Shot Learning for Multiple Sclerosis Detection in Low-Data Regime" at EMERGE by **Montassar Ben Dhifallah (Tunisia)**

- "GRAM: Graph Regularizable Assessment Metric" at Workshop MSB by **Mariem Touihri (Tunisia)**

- "Benchmarking Noise2Void: Superior Denoising of Medical Microscopic Images" at MICCAI meets Africa Workshop 2024 by **Abdourahmane Balde (Senegal)**

- "Automatic Segmentation of Medical Images for ischemic Stroke in CT Scans for the Identification of Sulcal Effacement" at MICCAI meets Africa 2024 by **Wahabou K. Taba Chabi (Benin)**

- "Early Detection of Liver Fibrosis" at MICCAI meets Africa by **Cheikh Yakhoub Maas (Senegal)**

- "Impact of Skin Tone Diversity on Out-of-Distribution Detection Methods in Dermatology" at MICCAI meets Africa Workshop by **Assala Benmalek (Kenya)**

- "Empowering Africa's Medical Imaging Research and Practice Through Data Sharing and Governance" at MICCAI meets Africa Workshop by **Houcemeddine Turki (Tunisia)**

- "Feasibility of video-based skill assessment for percutaneous nephrostomy training in Senegal" at MICCAI meets AFRICA by **Fatou Bintou Ndiaye (Senegal)**

- "Deployment and Evaluation of Intelligent DICOM Viewers in Low-Resource Settings: Orthanc Plugin for Semi-Automated Interpretation of Medical Images" at MICCAI meets AFRICA by **Andrew Shawa (Zambia)**

- "Optimized Brain Tumor Segmentation for resource constrained settings: VGG-Infused U-Net Approach" at MICCAI meets AFRICA **by Amal Saleh (Ethiopia)**

- "Generative Style Transfer for MR Image Segmentation: A case of Glioma Segmentation" in Sub-Saharan Africa at MICCAI meets AFRICA by **Raymond Confidence**

Award-winning papers:
We are delighted to report that multiple papers presented by African grantees received awards:

- Best Paper Award: "Spatial Attention-Enhanced Diffusion Model for Multiple Sclerosis MRI Synthesis" by Sahar Selim (Egypt) at the workshop on "Empowering MEdical information computing & Research through early-career Expertise" (EMERGE).

- Best Oral Presentation Award: "Automated Segmentation of Ischemic Stroke Lesions in Non-Contrast Computed Tomography Images" by Toufiq Musah (Ghana) at the MICCAI Meets Africa Workshop.

- Best Student Paper Award: "Evaluating Perceived Workload, Usability, and Usefulness of AI Systems in Low-Resource Settings" by Malaizyo Muzumala (Zambia) at the Third Workshop on Applications of Medical Artificial Intelligence (AMAI).

3. Workshops, Challenges, and Tutorial Participation:

The strong representation of African researchers at MICCAI 2024, made possible by the generous financial support from the sponsors, enhanced the inclusivity and impact of several key sessions organised during the conference.

The *MICCAI Meets Africa workshop* showcased ground-breaking African research addressing continent-specific healthcare challenges. It provided a platform for innovative solutions tailored to resource-limited settings, promoting the application of MICCAI technologies to improve healthcare across Africa.

Another notable highlight was the From *MICCAI to AFRICAI session*, which introduced the AFRICAI Special Interest Group. This initiative aims to sustain the momentum of MICCAI research and foster long-term collaborations throughout the African continent beyond the 2024 conference.

The *BraTS-Africa Challenge 2024* brought unique attention to African glioma cases, offering a vital opportunity to expand the global understanding of brain tumours within the African context. Many African grantees played pivotal roles in the organisation and success of this challenge, ensuring high representation and engagement from the region.

The *MARIO Challenge 2024* focused on advancing AI algorithms for assessing the progression of Age-related Macular Degeneration (AMD) using Optical Coherence Tomography (OCT) scans. Participants, including African grantees, had the unique opportunity to test their algorithms on a diverse dataset comprising patient data from both Europe and Africa, fostering innovation in cross-regional healthcare solutions.

The *ACOUSLIC-AI Challenge* advanced AI-driven solutions for prenatal care by tackling the novel task of automated fetal abdominal circumference measurement using blind-sweep ultrasound data. This initiative, conducted with data from novice operators in African peripheral healthcare units, was especially relevant for African grantees as it addressed critical healthcare gaps in resource-limited settings. By fostering innovation, the challenge marked a significant step toward improving maternal and neonatal outcomes in underserved regions.

The *LISA Challenge* drove innovation in low-field paediatric brain MRI segmentation and quality assurance, tackling critical gaps in neuroimaging for resource-constrained settings. With data from ultra-low-field MRI scanners, this challenge enabled African grantees to contribute to cutting-edge neuroimaging solutions tailored to the unique challenges of their communities. The resulting tools enhanced understanding of neurodevelopmental disorders and advanced paediatric brain imaging accessibility across underserved areas, particularly in Africa.

The *MICCAI FLARE24 Challenge* focused on whole-body cancer segmentation using over 10,000 CT scans, promoting advancements in segmentation accuracy and efficiency. It was particularly valuable for African grantees as it addressed healthcare challenges in low-resource settings and supported the development of AI-driven cancer care solutions.

The *"Mycetoma MicroImage: Detect and Classify Challenge"* united global experts to develop AI-driven models for detecting and classifying mycetoma from histopathological images. For African grantees, the challenge offered valuable opportunities to engage with advanced AI techniques and contribute to solutions improving diagnosis and treatment in regions most affected by mycetoma, particularly in low-resource settings.

The *Low-Field MRI for LMICs Tutorial* explored the challenges and opportunities of democratising MRI access in low- and middle-income countries through low-cost, low-field MRI systems. The tutorial addressed technical and practical challenges, showcasing advancements in hardware, acquisition techniques, and AI-driven post-processing methods to enhance image quality. For African grantees, this session offered critical insights into innovations that could improve MRI accessibility and diagnostic capabilities in their regions.

The involvement of African researchers across these sessions enriched discussions, strengthened global collaborations, and underscored the importance of inclusive approaches to advancing healthcare solutions worldwide.

4. Testimonies of Impact

Attendees expressed deep gratitude for the opportunities provided by the sponsorship, highlighting how it significantly impacted their research, presentation skills, and global networking. Many shared that the experience enhanced their visibility within the scientific community, opening avenues for future collaborations and professional development. The sponsorship did more than facilitate attendance: it has the potential to radically transform the careers of researchers, particularly those from resource-constrained settings. By enabling connections with international experts, providing a platform to present ground-breaking work, and offering invaluable feedback, the sponsorship empowered individuals to elevate their careers and make contributions to the field.

Testimonials also underscored the remarkable cultural exchange and inclusivity that defined MICCAI 2024, demonstrating how the conference transcended geographical boundaries to create a collaborative environment. This inclusivity was particularly notable with the participation of a diverse range of African researchers, whose voices were amplified in the fields of AI and medical imaging, areas where African innovation is often underrepresented. Thanks to the sponsorship, MICCAI 2024 succeeded in empowering African researchers and fostering a global community united by a shared vision of advancing healthcare innovation. The conference not only increased the representation of African voices in these critical fields but also established a foundation for ongoing progress and collaboration across continents. The contributions of sponsors have set a new benchmark for inclusivity in academic conferences, enabling talented

individuals to take part in transformative experiences that would otherwise have been out of reach. The success of this initiative provides a strong foundation for continued efforts to break down barriers and further advance research in ways that benefit the global healthcare landscape.

African grantees testimonies

"Professionally, I found the deep dives into AI and medical imaging truly eye-opening, but what stood out the most for me was the chance to meet and exchange ideas with such diverse, passionate minds. Personally, it was a reminder of how powerful and motivating it is to be surrounded by people who are all working towards the same goal—advancing healthcare through innovation."

Asmae Zanbouaa, Morocco

"MICCAI 2024 provided me with an amazing platform to connect with fellow clinicians, AI specialists, and researchers. I left with not only professional contacts but new friendships. The exchange of ideas over coffee and during sessions was a real highlight—it's refreshing to see how much we can learn from each other across disciplines and continents. I wouldn't have attended this conference without the African travel grants. A huge thanks for doing this to Africans."

Abbas Rabiu, Nigeria

"It was a wonderful event. I very much appreciated the organization to start with the presentation of the different sections, posting them without forgetting the mixture that there were during the coffee and lunch poses (European and Morocco culture). The quality of the various presentations also shows the seriousness that there was last this organization. It was just fabulous."
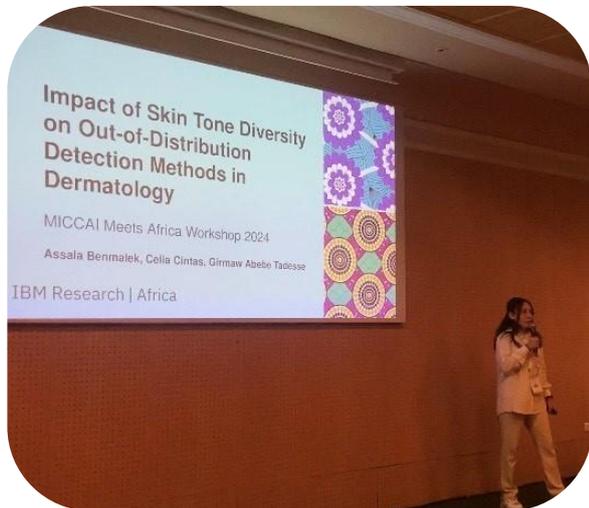
Wahabou Kassim Taba Chabil, Benin

"I particularly appreciated the diversity and quality of the scientific presentations at MICCAI this year. It allowed me to broaden my perspectives on new artificial intelligence methods applied to medical imaging, while discovering promising innovations for clinical research."

Abdourahmane Balde, Senegal

 "Attending MICCAI is a significant milestone in my career, as it provided me the opportunity to give my first oral presentation at such a prestigious conference as a master's student. This experience did not only help me grow as a researcher but also enhanced my presentation skills for future presentations. MICCAI is truly the beginning of my professional journey as I am working toward becoming a research scientist. I have also had the pleasure of meeting and connecting with many new friends from across Africa and beyond, further broadening my international network."

Assala Benmalek, Kenya

"I would like to express my sincere thanks for your generous support for my participation in the MICCAI 2024 conference. Your sponsorship has made it possible for me to interact with leading experts and gain insights in the field."

Mengistu Tasew, Ethiopia

"I thoroughly enjoyed presenting my research at MICCAI Deep Breath Track, being fully funded to attend, and having my work accepted for publication in Springer Nature after the conference was an incredible research and professional milestone for me."

Jimoh Abdulganiyu, Morocco

"What I enjoyed the most was the diversity of research presented and the opportunity to engage with experts from across the globe, opening new avenues for collaboration and growth, both professionally and personally. Lest I forget, the food too was great."

Toufiq Musah, Ghana

"What I enjoyed most professionally was the opportunity to share my research and receive valuable feedback from peers, which will undoubtedly shape my work moving forward.

Personally, it was inspiring to meet and engage with people from around the world, united by a shared passion for advancing medical imaging and AI."

Kpêtchéhoué Merveille Zinsou, Senegal

"The most I enjoyed was that I was able to correlate my clinical experience with technical aspects. I learned more about the "back-end" of projects, found endless possibilities, and made a lot of connections. I also enjoyed sharing the clinical part and challenges we face to colleagues to narrow the gap."

Mohamed Ghonim, *Egypt*

"What I enjoyed most about the conference was the various experts I got to meet and interact with. I am quite new in the space of AI, and they were all so gracious and helpful. I created a number of networks that I will keep in touch with and learn a lot from. I really appreciate the African Travel Grant for awarding me that opportunity. Zikomo Kwambiri (Thank you very much!) ."

Malaizyo Gabriel Muzumala, *Zambia*

"My heartfelt thanks to the sponsors for their support that enabled me to attend MICCAI 2024. The conference was an incredible opportunity for me to meet professionals in the field to share ideas, engage in thought-provoking discussions, build lasting connections and additional beautiful memories to the exposure to a different culture and country. None of this would have been possible without the support of organizations like yours."

Catherine Namayega, *South Africa*

"Attending MICCAI 2024 thanks to the African Travel Grant offered me an exceptional opportunity to present my research for the first time in person through an oral presentation. I also had the chance to meet some of my collaborators in person and engage with members of the communities I have joined, such as RISE and AFRICAI, while discovering new communities like WiM and Spark Camera MRI. This experience allowed me to witness the evolution of the field and discover new articles, challenges and research projects.

As an African researcher in computer-assisted surgery based in Senegal, this participation has been particularly rewarding. It gave me greater visibility within the scientific community while allowing me to gain new perspectives on how AI and computer vision applied to healthcare can continue to progress in Africa."

Fatou Bintou Ndiaye, Senegal

"I'm thrilled to share that I had the opportunity to attend MICCAI2024 in the beautiful city of Marrakesh, Morocco, where I was honoured to present my research paper at the EMERGE Workshop. As an Egyptian, opportunities to travel and attend prestigious conferences like MICCAI are often limited. Receiving the African grant was a tremendous support, enabling me to present my work and gain invaluable knowledge from leading experts in the field.

The experience was truly inspiring, filled with insightful talks and ground-breaking research that not only expanded my knowledge but also deepened my passion for the field. It was a rewarding journey to be surrounded by experts and innovators advancing medical AI applications. This event has fuelled my enthusiasm to contribute further to our shared goals in medical AI."

Aya Gamal, Egypt

"What I truly enjoyed about the conference was the opportunity to meet so many brilliant young minds who are achieving so much innovation in effort to eventually improve medical care. I don't usually get the opportunity to meet non-medical people in my line of work, but this was truly enlightening. And it gave an opportunity to attend an international conference and fly for the first time in my life. If given the chance again, I would do it all over again."
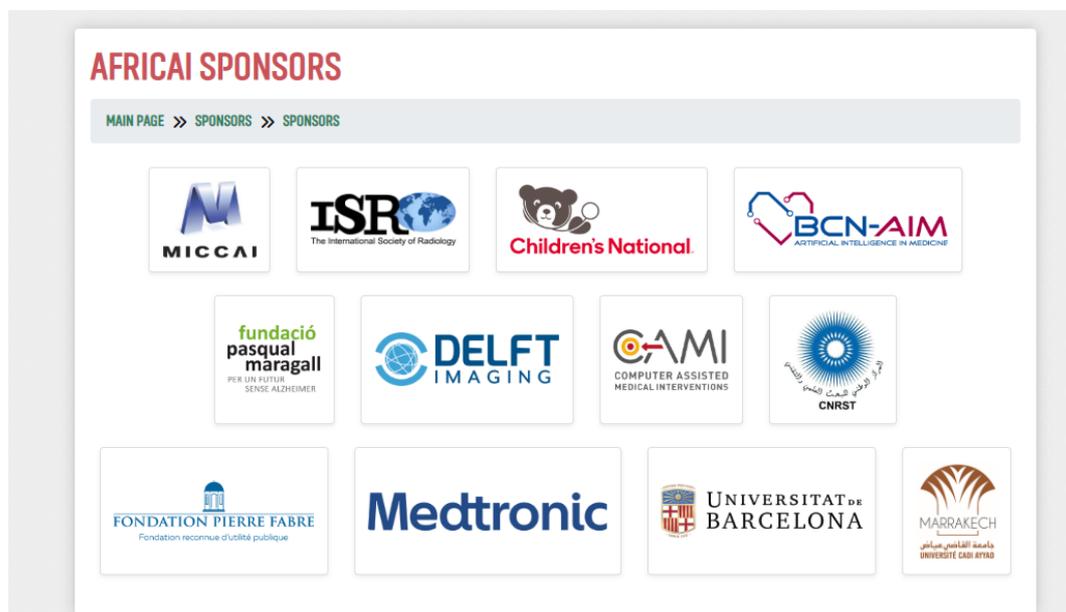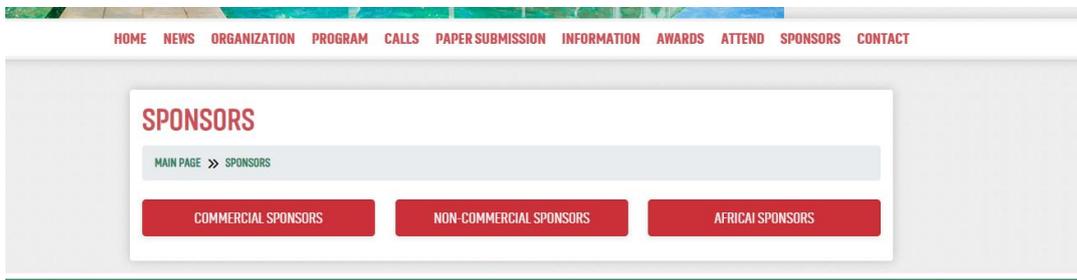
Gerald Odong, Kenya

MICCAI GRANTEES AND VOLUNTEERS AT THE STAGE ON THE CLOSING CEREMONY ALONG WITH THE ORGANISATION COMMITE

5. Proof of recognition of sponsorship

To ensure the invaluable contributions of our sponsors were appropriately recognised, a variety of acknowledgments were integrated into MICCAI 2024. These included the prominent display of sponsor logos on event banners and big screens during key sessions, as well as dedicated sections on the official MICCAI 2024 website. Below are examples showcasing this recognition, including photos of banners and screens featuring sponsor logos, along with a screenshot from the website. These measures underscored the vital role of sponsorship in the success of the conference, ensuring that both participants and the wider community were aware of and appreciated the sponsors' generous support.

MICCAI's website displayed all the sponsors:

There were two large banners at the entrance of the conference centre displaying all the sponsors of MICCAI, where many people could take pictures.

Large screens were displayed between sessions, highlighting our sponsors

Special Mention in the MICCAI 2024 Programme Book

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6. Conclusions

In conclusion, the generous sponsorship of MICCAI 2024 has had a transformative impact, particularly for African students and researchers, empowering them to participate in a global forum that significantly enhanced their research, presentation abilities, and professional networks. The support provided not only amplified African voices in the fields of AI and medical imaging but also fostered inclusivity and diversity, setting a new benchmark for future academic conferences.

The workshops and sessions, such as MICCAI Meets Africa and BraTS-Africa Challenge 2024, showcased the richness of African contributions to addressing continent-specific healthcare challenges, while the AFRICAI Special Interest Group session laid the foundation for sustained collaboration across Africa. The event served as a powerful platform for promoting research and innovation that will continue to benefit the global healthcare community. Moving forward, the success of MICCAI 2024 offers a clear pathway for further advancing international collaboration, breaking down barriers, and creating opportunities for researchers worldwide to thrive. The impact of this sponsorship will undoubtedly reverberate for years to come, continuing to inspire and drive meaningful progress in the healthcare and technology sectors.

We would like to extend our heartfelt thanks to all sponsors for their invaluable support in making MICCAI 2024 a resounding success. We look forward to continuing this journey in MICCAI 2025 and invite new sponsors to join us in advancing global healthcare research and innovation. Together, we can make an even greater impact in the years ahead.