

Mike Nsubuga

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Education

- 2023 – 2027 **University of Bristol, UK** **Doctor of Philosophy**
Research: Using machine learning to facilitate rapid and efficient responses to gastrointestinal disease outbreaks. Supported by **MRC Ph.D. Studentship**
- 2020 – 2022 **Makerere University, Uganda** **Master of Science in Bioinformatics (First Class Honors)**
Dissertation Title: A machine learning approach to predict *E. coli* antibacterial resistance using whole-genome sequencing data in Uganda. Supported by **NIH-Fogarty M.Sc. Fellowship**
- 2016 – 2019 **Makerere University, Uganda** **Bachelor in Information Technology (First Class Honors)**

Work Experience

- 2023 – PRESENT **Jean Golding Institute of Data Science, University of Bristol, U.K**
Part-time Data Scientist
- 2023 – 2023 **Division of Human Genetics, University of Cape Town, S.A**
Research Fellow
- 2020 – 2023 **Infectious Diseases Institute (IDI), African Center of Excellence in Bioinformatics (ACE), Makerere University**
Research Fellow & Bioinformatics Trainee
- 2020 – 2022 **Supporting African Math Initiatives (SAMI), U.K**
Software Developer (Volunteer to SAMI Math Charity)
- 2020 – 2020 **Statistics for Sustainable Development (STATS4SD), Reading, UK**
Programming Intern
- 2018 – 2019 **Department of Computer Science, Makerere University**
C & Java programming tutorial assistant

Publications

Peer-Reviewed Publications

- Nsubuga, M.**, Galiwango, R., Jjingo, D., & Mboowa, G. (2024). Generalizability of machine learning in predicting *E. coli*: A multi-country case study in Africa. *BMC Genomics*, 25(1), 287. <https://doi.org/10.1186/s12864-024-10214-4>
- Please, H., Narang, K., Bolton, W., **Nsubuga, M.**, Luweesi, H., Richards, N. B., Dalton, J., Tendo, C., Khan, M., Jjingo, D., Bhutta, M. F., Petrakaki, D., & Dhanda, J. (2024). Virtual reality technology for surgical learning: Qualitative outcomes of the first virtual reality training course for emergency and essential surgery delivered by a UK–Uganda partnership. *BMJ Open Quality*, 13(1). <https://doi.org/10.1136/bmjog-2023-002477>
- Buyego, P., Katwesigye, E., Kebirungi, G., **Nsubuga, M.**, Nakyejwe, S., Cruz, P., McCarthy, M. C., Hurt, D., Kambugu, A., Arinaitwe, J. W., Ssekabira, U., & Jjingo, D. (2022). Feasibility of virtual reality based training for optimising COVID-19 case handling in Uganda. *BMC Medical Education*, 22(1), 274. <https://doi.org/10.1186/s12909-022-03294-x>

Other Scholarly Works

Nsubuga, M. (2023). *A machine learning approach to predict E. coli antibacterial resistance using whole-genome sequencing data* [Thesis, Makerere University]. <http://makir.mak.ac.ug/handle/10570/13162>

Poster & Conferences

Nsubuga M, Yi Ling Tam, Malaka de Silva, James Hall, Lauren Cowley, Claire Jenkins, Kate Baker, Sion

Bayliss. (2024). Mapping the distribution of AMR in *Shigella sonnei*. NIHR HPRU in Gastrointestinal Infections, Birmingham

Professional recognition and key awards, grants

2024 - **Travel Award:** Awarded a travel grant by the Medical Research Council (MRC) to attend the 2024 Computational Genomics Summer Institute at the University of California, Los Angeles (UCLA).

2023 - **Ph.D. Studentship:** Awarded a Studentship from the Medical Research Council (MRC) to undertake a 4-year Ph.D. at University of Bristol.

2022 - **Travel Award:** Awarded a travel scholarship from the Open Science Grid (OSG) funded by the National Science Foundation (NSF) to attend OSG school at the University of Wisconsin-Madison.

2021 - **M.Sc. Fellowship:** Awarded a Fellowship from the National Institutes of Health (NIH) to undertake a 2-year Master's degree program in Bioinformatics at Makerere.

2020 - **Dissertation Award:** Graduated top of undergraduate class, 2019, with a CGPA 4.71/5.0

Invited Talks and Presentations

23/08/2023 - Empowering low middle income countries against antimicrobial resistance with AI and Whole-Genome Sequencing, AMR Force, University of Bristol

23/07/2022 - University of Wisconsin, U.S – Open Science Grid (OSG) Summer School, US

04/03/2022 - End to end AI and data systems for targeted surveillance and management of COVID-19 and future pandemics affecting Uganda (COAST), Uganda

08/04/2022 - Optimizing the SickleInAfrica Registry Data Collection Workflow Using Site-specific Clinical Processes, South Africa

26/04/2022 - Virtual Reality in Medicine and Surgery Conference (VRiMs), Uganda

01/05/2022 - Teaching Assistant - H3ABioNet and Wellcome Connecting Science NGS course 2022, Virtual

01/05/2021 - Teaching Assistant - H3ABioNet and Wellcome Connecting Science NGS course 2021, Virtual

Ongoing and completed research projects

- 2021 – 2025 **Data Scientist**
Open Data Science Platform (ODSP) – Funded by National Institutes of Health (NIH), Data Science Initiative Africa (DSI)
- 2021 – 2023 **Junior Data Scientist**
End to end AI and data systems for targeted surveillance and management of COVID-19 and future pandemics affecting Uganda (COAST). Sub-theme: Artificial Intelligence based COVID-19 chatbot for Uganda – Funded by IDRC and Makerere University
- 2021 – 2022 **Lead Software Developer**
An Epilepsy Self-Management and Resilience Technical application for Adolescents and their community – Funded by Epilepsy Foundation in collaboration with Duke University
- 2021 – 2025 **Lead Developer**
Sickle Pan- African Research Consortium (SPARCO) Uganda: Strengthening Capacity for Clinical Care, Research and Training in Sickle Cell Disease– Funded by NIH/NHLBI and UCT
- 2020 – 2021 **Lead Software Developer**
Virtual Reality Technology for Optimizing Safety and Competence in Management of Patients with COVID-19 disease – Makerere University Research & Innovation Fund and NIH/NIAID/Office of Cyber Infrastructure and Computational Biology (OCICB)
- 2020 – 2021 **Lead Software Developer**
Virtual Reality Technology for Surgical Learning – Makerere University and Global Anesthesia, Surgery and Obstetrics Collaborative (GASOC)
- 2020 – 2020 **Software Developer**
SAMI Math Club App (A collection of mathematical problems and puzzles to support mathematical thinking, problem solving and love of mathematics, used in 5 African countries during Maths Camp) – Funded by SAMI
- 2020 – 2021 **Lead Software Developer**
Card Deck – A web and mobile application together with a printed card deck featuring unique activities, engaging participants in games, puzzles or fun mathematical facts – Funded by IDEMS International & SAMI
- 2020 – 2021 **Junior Developer**
Parenting for Lifelong Health (PLH) – An open source and evidence based parenting app to support parents and caregivers during the COVID-19 pandemic and beyond – Funded by UNICEF, Newton Fund, UK Research & Innovation, University of Oxford, the LEGO foundation, End Violence Against Children, The Human Safety Net and AK Foundation