

Ashery Mbilinyi

Assistant Professor, University of Victoria

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Summary

I am an Assistant Professor and Head of the Medical Computer Vision (MCV) Lab at the University of Victoria, **Canada**. My research focuses on developing AI systems that interpret medical images and clinical data to support diagnostic decision-making and improve patient care. I am passionate about tackling challenging problems and applying my expertise in **AI** and **software engineering** in ways that generate meaningful benefits for society.

Education

2017-2023 **Ph.D. Computer Science**, *University of Basel*, Basel, **Switzerland**

Worked at the intersection of the fields of machine learning, computer vision, and information retrieval, with a focus on developing methods to improve medical image retrieval systems for more accurate support of diagnostic radiology. This work resulted in publications in leading venues in Applied Computing and Bioinformatics, including ACM SIGAPP, IEEE BIBM, and IEEE-EMBS BHI.

2015-2017 **M.Sc. Information Science**, *JAIST*, Nomi, **Japan**

Conducted research on Intelligent Tutoring Systems at the *Japan Advanced Institute of Science and Technology (JAIST)*, where I developed a theoretical framework to address the “cold-start problem”. In addition, I implemented a web-based system that provided personalized learning recommendations to students. This work culminated in presentations at three international conferences and contributed to advances in the field of educational technology.

2007-2013 **B.Eng. Computer Engineering**, *Dar es Salaam Institute of Technology (DIT)*, **Tanzania**

Graduated 2nd out of 86 students in the class of 2013. For my final-year project, I designed and developed an online learning management system using **PHP** and **MySQL**, showcasing strong skills in software development and **database management**.

Experience

- Sept. 2024–Present **Assistant Professor & Head, Medical Computer Vision Lab**, *University of Victoria*, **Canada**
- Developing AI systems for interpreting medical images to support diagnostic decision-making and improve patient care.
- Jun 2023–Aug. 2024 **Postdoctoral Researcher**, *The University of British Columbia*, Vancouver, **Canada**
- Collaborated with Vancouver General Hospital and Providence Health Care—which operates 18 healthcare facilities across British Columbia—to develop models for supporting cardiovascular disease intervention and management.
- 2020–2023 **Research Assistant**, *University of Basel*, Basel, **Switzerland**
- Developed methods to improve medical image retrieval systems to accurately support diagnostic radiology.
- Apr.–Aug. 2017 **Assistant Lecturer**, *Dar es Salaam Institute of Technology (DIT)*, Dar es Salaam, **Tanzania**
- Developed and delivered the course content for “**Object-Oriented Programming**,” an undergraduate course covering fundamental principles, software design patterns, and practical implementation.
- Sept. 2015 **Business Analyst Intern**, *Ricoh Company Ltd*, Tokyo, **Japan**
- Worked with the emerging markets team to analyze data and formulate strategies for emerging markets.
- Oct. 2014–Mar. 2015 **Research Assistant**, *Distance Learning Center, JAIST*, Nomi, **Japan**
- Worked at the Center for Innovative Distance Education and Research, analyzing lecture activity data and maintaining e-learning infrastructure.

- Nov. **Software Developer**, *India-Tanzania Centre of Excellence in ICT*, Dar es Salaam, **Tanzania**
- 2013–Sept. 2014 ○ Led the development of a telemedicine application to connect doctors at referral hospitals with patients in underserved health centers.
- Apr.–Oct. 2013 **Computer Lab Technician**, *Dar es Salaam Institute of Technology (DIT)*, Dar es Salaam, Tanzania
- Maintained computer equipment and peripherals in the lab and guided students during practical sessions.
- 2008, 2011 **Physics Teacher**, *Vwawa Secondary School*, Songwe, **Tanzania**
- Volunteered to teach Physics at a local school that faced a shortage, with only one teacher for over 400 students.

Selected Publications

- Rishabh Jha and **Ashery Mbilinyi**, “Automated Chagas Disease Detection using ResNet-Based Architecture with Robust ECG Preprocessing,” *Computing in Cardiology (CinC 2025)*, to appear.
- **Ashery Mbilinyi**, “Human-Centered AI: Transparency, Interpretability, and the Future of Trust.” *In AI: The Good, The Bad, and the Game-Changer*, edited by Islem Rekik, 147-154. **2025**.
- **Ashery Mbilinyi**, Callum O’Riley, Julia Handra, Ashley Moller-Hansen, Jason Andrade, Marc Deyell, Cameron Hague, Nathaniel Hawkins, Kendall Ho, Jonathon Leipsic, Roger Tam, “Efficient Neural Architectures for Real-Time ECG Interpretation on Limited Hardware,” *IEEE Journal of Biomedical and Health Informatics (JBHI)*, submitted.
- Md. Mahedi Hasan Joy, Muhammad Nazrul Islam, Mohammad Ali Moni, **Ashery Mbilinyi**, Bishnu Sarker, Jasushi Inoguchi, Faiz Al Faisal, “SEANet15: An Enhanced Squeeze & Excitation Infused Hybrid Attention Network for the Classification of Cancerous Lymphatic Tissue in Histopathology Imaging,” *Biomedical Signal Processing and Control*, submitted.
- Julia Handra, Hannah James, **Ashery Mbilinyi**, Ashley Moller-Hansen, Jason Andrade, Marc Deyell, Cameron Hague, Nathaniel Hawkins, Kendall Ho, Ricky Hu, Jonathon Leipsic, Callum O’Riley, Roger Tam, “The Role of Machine Learning in the Detection of Cardiac Fibrosis from Electrocardiogram: A Scoping Review,” *JMIR Cardio*, **2024**.
- Abdul-Hakeem Omotayo, **Ashery Mbilinyi**, Lukman Ismaila, Houcemeddine Turki, Mahmoud Abdien, Karim Gamal, Idriss Tondji, Yvan Pimi, Naome A. Etori, Marwa Matar, Gbetondji Dovonon, Daniel Ajisafe, Mennatullah Siam, “The State of Computer Vision Research in Africa,” *Journal of Artificial Intelligence Research*, **2024**.
- **Ashery Mbilinyi**, Heiko Schuldt, “CheReS: A Deep Learning-Based Multifaceted System for Similarity Search of Chest X-rays,” *Proceedings of the 37th ACM/SIGAPP Symposium on Applied Computing (SAC)*, Brno, Czech Republic, **2022** (Acceptance rate = 22.29%).
- **Ashery Mbilinyi**, Heiko Schuldt, “Retrieving Chest X-rays for Differential Diagnosis: A Deep Metric Learning Approach,” *Proceedings of the IEEE EMBS International Conference on Biomedical and Health Informatics (BHI)*, Athens, Greece, **2021** (Acceptance rate = 32.7%).
- **Ashery Mbilinyi**, Heiko Schuldt, “Cross-Modality Medical Image Retrieval with Deep Features,” *Proceedings of the IEEE International Conference on Bioinformatics and Biomedicine (BIBM)*, Seoul, South Korea, **2020** (Acceptance rate = 19.4%).
- **Ashery Mbilinyi**, Heiko Schuldt, Nicolas Maire, Thomas Smith, “Analysis of Malaria Risk based on Housing Conditions in Sub-Saharan Africa,” *Proceedings of the ACM International Conference on Digital Health (DH)*, Lyon, France, **2018**.

Leadership

- Jan.–Aug. 2025 **General Chair**, *Data Science for Health in Africa Workshop*, Kigali, **Rwanda**
- Organized the Data Science for Health in Africa Workshop at Deep Learning Indaba 2025, the premier AI conference in Africa. Achieved a 300% increase in participation compared to the previous year through effective coordination and planning.
- June 2025 **Roundtable Leader**, *Conference on Health, Inference and Learning (CHIL)*, Berkeley, **USA**
- Led a research roundtable on Explainability, Interpretability, and Transparency of AI, bringing together researchers from around the world. The discussions culminated in a community white paper on the topic.

- Jan.–Jul. 2025 **Practical Chair**, *Africa Computer Vision Summer School (ACVSS)*, Kigali, **Rwanda**
- Organized and led the practical sessions at ACVSS, engaging 26 top students from across Africa with lectures and sessions delivered by leading international researchers in computer vision.
- 2024 - present **Interviewer**, *UBC Faculty of Medicine, MD Undergraduate Program*, Vancouver, **Canada**
- Volunteering as an interviewer for the UBC MD Undergraduate Program applicants.
- 2014–2015 **Rising Star**, *Google Chrome Help Forum*, Online, **Global**
- Volunteered in the Google Top Contributors program to assist Chrome users by providing technical support and guidance.
- 2013 **Co-Organizer**, *Google Developer Group (GDG) Dar es Salaam*, Dar es Salaam, **Tanzania**
- Co-organized events, workshops, and meetups focused on Google products, tools, and technologies as part of the Google Developer Group community.
- 2012–2013 **Google Student Ambassador**, *Dar es Salaam Institute of Technology (DIT)*, **Tanzania**
- Served as liaison between Google and DIT.
 - Founded and led a team of eight students to organize events and seminars focused on Google technologies.
 - Led DIT to achieve 7th place among 65 African universities in the Google Map-Up Week competition.
 - Selected by Google Sub-Saharan Africa University Programs to join a four-member team (out of 170 ambassadors) managing social media channels for the GSA class of 2013.

Awards and Honours

- 2025 **Google Cloud Credits**, *MedGemma Hackathon, Deep Learning Indaba 2025*
- Received USD 24,000 in Google Cloud Credits to support a month-long hackathon on healthcare applications using MedGemma, MedSigLIP, and TxGemma APIs.
- 2025 **Google Conference Sponsorship**, *Data Science for Health in Africa Workshop*
- Awarded USD 10,000 from Google to support the workshop at Deep Learning Indaba 2025.
- 2023 **CVPR Travel Grant**, *IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*, Vancouver, Canada
- Received a travel grant to attend CVPR 2023.
- 2021 **Second Runner-up**, *Roche Healthcare Xplorers Program*, **Europe**
- Placed second among participants from 24 European universities. Developed a GAN model to generate patient-reported outcomes for cancer patients.
- 2018 **Hackathon Winner**, *Streamline Hackathon, ScaDS.AI*, Leipzig, **Germany**
- Member of winning team of the hackathon at the 4th International Summer School for Big Data and Machine Learning, organized by ScaDS.AI (German Center for Scalable Data Analytics and Artificial Intelligence).
- 2017 **Swiss Government Excellence Scholarship (ESKAS)**, *Government of Switzerland*, Switzerland
- One of only four students from Tanzania awarded the prestigious ESKAS scholarship to pursue Ph.D. studies at Swiss universities.
- 2015 **ABE Initiative Scholarship**, *Government of Japan*, Japan
- Selected as one of 156 students from across Africa to pursue master's studies in Japan under the ABE Initiative.
- 2013 **ITEC Scholarship**, *Government of India*, Noida, **India**
- Selected among 28 individuals from 19 Commonwealth countries to receive the ITEC Scholarship for intensive training in web application development at CDAC-Noida.
- 2013 **Second Best Student**, *Dar es Salaam Institute of Technology (DIT)*, Dar es Salaam, Tanzania
- Recognized by the DIT Council for achieving the second-highest academic performance in the Bachelor of Computer Engineering class of 2013.

Invited Talks

Jun. 2025 **Spark Academy**

- Presented on AI model evaluation and optimization at Spark Academy, a sprint training program on AI for African medical imaging knowledge translation.

Oct. 2024 **Vancouver General Hospital (VGH)**, *Vancouver, Canada*

- Delivered a talk titled “A Convolutional Network for ECG Signals Analysis” at the Radiology AI Symposium hosted by VGH.

Programming Competencies

Fluent in Python

Proficient in Java, C, PHP, JavaScript, SQL, HTML, CSS

Libraries & Frameworks PyTorch, TensorFlow, Keras, NumPy, scikit-learn, XGBoost, pandas, Faiss, OpenCV, NLTK, WEKA, Django, Spring, Hadoop, Spark, BeautifulSoup, CakePHP, Node.js, jQuery, Bootstrap

Cloud Google Cloud Platform (GCP), Amazon Web Services (AWS)

Git <https://github.com/AsheryMbilyi>

Service

2025 **Delegate**, *Science Meets Parliament–British Columbia*

- Selected as a delegate to engage with Members of the Legislative Assembly (MLAs) of British Columbia on the inclusion of scientific evidence in policymaking.

2024–Present **Peer Reviewer**

- Reviewed for leading conferences and journals, including MICCAI, ISBI, CHIL, IEEE EMBS BHI, IEEE Access, Journal of Healthcare Informatics Research, and Deep Learning Indaba.

2023–Present **Mentor**, *Black in AI*, Remote

- Mentored five students, supporting successful admission into top Ph.D. programs in the US and Europe.

2023–Present **Member**, *Ro'ya-CV4Africa*, Remote

- Contributing member of Ro'ya-CV4Africa, a grassroots community advancing computer vision research in Africa.

2024–Present **Member**, *SisonkeBiotik*, Remote

- Contributing member of SisonkeBiotik, a grassroots community promoting AI research in healthcare in Africa.

Specialized Training

Aug. 2022 **Roche PMDA Summer School**, *F. Hoffmann-La Roche AG, Basel, Switzerland*

- Selected to participate in the Predictive Modeling and Data Analytics (PMDA) Summer School, organized by Roche, with a focus on **single-cell gene expression** in drug discovery.

Aug.–Oct. 2013 **Specialized Program on Web Application Development**, *Centre for Development of Advanced Computing (C-DAC)*, Noida, **India**

- Completed a 3-month intensive training program in web application development using open-source tools (Java, PHP, MySQL) at C-DAC, Noida.

Professional Societies

ACM, IEEE, EMBS, MICCAI

Languages

Swahili (Native), English (Fluent), Japanese (Basic), German (Beginner)