John Bagiliko, M.Sc

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Education

NOV 2021 - PRESENT
University of Rwanda, Rwanda
PhD. by Research in Applied Mathematics
Topic: Leveraging machine learning to improve satellite rainfall estimates for African rainfed setting

SEP 2017 - FEB 2019
African Institute for Mathematical Sciences, Senegal
MSc. Mathematical Sciences
Topic: Extraction and Systematic Synthesis of Textual Information by Contextualization and Enrichment: Applications of Automated Reasoning in the Cognitive Sciences

SEP 2013 - JUN 2017
University for Development Studies, Ghana
BSc. Mathematical Sciences (Pure Mathematics)
Topic: Diophantine Approximation and Its Applications

Awards, scholarships and grants

- **Heidelberg Laureate Forum Young Researcher, Heidelberg Laureate Forum, 2024** - Selected as one of 200 young researchers globally to participate in the 11th Heidelberg Laureate Forum (HLF) in Heidelberg, Germany.
- **SAP Grant, SAP SE, 2024** - Selected among 20 participants to receive the SAP Grant, covering all expenses for the 11th Heidelberg Laureate Forum in Heidelberg, Germany.
- **Poster Award, Deep Learning Indaba 2023** - Won a poster prize for presenting work at Africa's biggest data science/machine learning gathering, receiving a signed copy of the book "Deep Learning".
- **IndabaX Poster Award, IndabaX Rwanda Workshop at ICLR 2023** - Second-best poster presenter at IndabaX Rwanda, 2023, receiving a cash prize of 400 USD.
- **AIMS - Carnegie Scholarship, Carnegie Corporation of New York, 2021** - Awarded this prestigious scholarship, fully funding my Ph.D. program.
- **Winner, Johnson & Johnson Africa Science Week Champions of Science Storytelling Challenge, 2020** - Entry selected as one of five winning stories in Africa, receiving a prize of 5,000 USD.
- **First Runner-Up, Zindi Hackathon, 2019** - Key player in a 3-member team placing second out of over 100 participants in a machine learning hackathon in Kigali, Rwanda, receiving 1000 USD.
- **Google Grant, Google, 2019** - Received a Google grant worth 750 USD to present a poster on research at the Deep Learning Indaba 2019, Nairobi, Kenya.
- **Country-Level Winner (Ghana), DataHack4FI Season 3, 2019** - Proud data enthusiast of the country-level first-prize winning team of the DataHack4FI Season 3 Innovation Award, receiving 5000 USD for the team.
- **Microsoft Award, Ghana Data Science Summit** - Third-best poster presenter at the IndabaX Ghana, 2019 poster presentations, receiving 25 USD.
- **Next Einstein Full Initiative Scholarship, 2017** - Awarded this prestigious scholarship, fully funding my master's program.

Industry experience

MAY 2021 - Oct 2021
International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), Bamako, Mali
Data Science Research Scholar
- Researched on the topic "Earth Observation: reducing rainfed smallholder field delineation costs with satellite imagery using deep learning".
- Built a Python package for automatically downloading satellite imagery and delineating plots for an area of interest.

MAY 2020 - OCT 2020
Superfluid Labs, Accra, Ghana
Data Scientist and Software Engineering Consultant
- Performed data analytics tasks for clients
- Built credit scoring models
- Built software (mainly data dashboards) with Python and Javascript

Jan 2020 - Dec 2022
Zindi Africa, Accra, Ghana
Country Ambassador
- Participated in regular Zindi Ambassador conference calls
- Connected Zindi with potential partners, data sets, and competition hosts
- Ran hackathons, meet-ups, trainings, and other events that support the data science community in Ghana
- Assisted with coordination and logistics of Zindi events in Ghana
- Spoke about Zindi at events
- Helped to recruit and coordinate University Student Ambassadors
- Built starter notebooks for machine learning competitions

Oct 2019 - Apr 2020
TKT Consulting, Accra, Ghana
Data Scientist and Software Engineering Consultant
Mar 2019 - Sep 2019
Volkeno, Dakar, Senegal (worked remotely from Ghana)
Data Scientist and Software Developer
May 2018 - Nov 2018
Volkeno, Dakar, Senegal
Data Scientist and Software Developer Intern

Licenses, certifications & key projects

- **May 2021 - Oct 2021 -** Field delineation with satellite imagery using deep learning, ICRISAT Mali (see presentation)
- **May 2020 -** Dog breed image classification using transfer learning, *Udemy - Credential ID UC-0b063867-a288-45b8-b2ff-8ef1c337b59a*
- **Mar 2020 -** Improving Deep Neural Networks: Hyperparameter tuning, Regularization and Optimization*, Coursera - Credential ID C25K6WZ3EEH7*
- **Feb 2020** Neural Networks and Deep Learning, *Coursera - Credential ID A3RP8X5G9EKU*
- **Jan 2020** - Deep Learning For Computer Vision*, Udemy - Credential ID UC-EQGQDQZX*
- **Jan 2020** - Machine Learning Practical Workout | 8 Real-World Projects, *Udemy - Credential ID UC-AKTGAJNS*
- **Dec 2019** - Microsoft Professional Program in Data Science*, Microsoft - Credential ID A03A0BE8-D2CE-42A3-8D8E-4B447FA360AF*
- **2019** - Detect and classify Pneumonia from x-ray images using deep learning, *Kaggle, https://www.kaggle.com/code/johnbagiliko/kernel36b667b425*

Skills

- **Programming languages:** Python, R, Javascript
- **Tools and Frameworks**: Keras, Scikit Learn, Google Earth Engine, AWS, QGIS, Jupyter Notebook, R Studio, LaTeX, Django
- **Technical skills:** Strong research ability, experienced in machine learning & deep learning
- **Soft skills:** Autonomy, problem-solving skills, critical thinking, great writing skills, great team player
- **Languages:** English, French, Twi, Dagaare, Portuguese (basic)
- **Hobbies**: Reading, writing, travelling, listening to music, learning a new language

Publications

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1. Bagiliko, J., Stern, D., Feehi Torgbor, F., Parsons, D., Owusu Ansah, S., & Ndanguza, D. (2025). **Bias correction of satellite and reanalysis products for daily rainfall occurrence and intensity**. arXiv e-prints, arXiv-2510.
2. Parsons, D., Stern, D., Ndanguza, D., Sylla, M. B., Musyoka, J., Bagiliko, J., ... & Dorward, P. (2025). **Evaluating satellite and reanalysis rainfall estimates for climate services in agriculture: a comprehensive methodology**. arXiv preprint arXiv:2507.20471.
3. Bagiliko, J., Stern, D., Ndanguza, D. et al. **Validation of satellite and reanalysis rainfall products against rain gauge observations in Ghana and Zambia**. Theor Appl Climatol 156, 241 (2025). https://doi.org/10.1007/s00704-025-05462-7.
4. Mbuvha, Rendani and Yaakoubi, Yassine and Bagiliko, John and Hincapie Potes, Santiago and Nammouchi, Amal and Amrouche, Sabrina, **Leveraging AI for Climate Resilience in Africa: Challenges, Opportunities, and the Need for Collaboration** (May 3, 2024). Available at SSRN: https://ssrn.com/abstract=4815919 or http://dx.doi.org/10.2139/ssrn.4815919
5. Bagiliko, J., Kaninda MUSUMBU, & Saliou Diouf. (2019). **Extraction and Systematic Synthesis of Textual Information by Contextualization and Enrichment: Applications of Automated Reasoning in the Cognitive Sciences.** *IJRDO - Journal of Mathematics (ISSN: 2455-9210), 5*(7), 01-08
6. Stewart, O., Banifatemi, A., Forslund, M., Adekanmbi, O., Akinsande, O., Oluwaseun, H., Oladosu, H., Oyewusi, W. F., Mtambalike, J. R., Mohemadali, E., Kotin, T., Kotin, W., Odei, E., Bagiliko, J., and Chklovski, T. (2020). **Problem and solution documentation template for machine learning competitions to enhance explainability, reproducibility, and collaboration between stakeholders.** *In Challenges in Machine Learning (CiML) workshop, 4th Conference on Neural Information Processing Systems (NeurIPS 2020)*
7. Stewart, O., Banifatemi, A., Forslund, M., Adekanmbi, O., Akinsande, O., Oluwaseun, H., Oladosu, H., Oyewusi, W. F., Mtambalike, J. R., Mohemadali, E., Kotin, T., Kotin, W., Odei, E., Bagiliko, J., and Chklovski, T. (2020). **Federated Grassroots Community Model for Catalyzing Artificial Intelligence for Common Good.** *In Challenges in Machine Learning (CiML) workshop, 4th Conference on Neural Information Processing Systems (NeurIPS 2020)*