

Dr. ACHIENG K. OTIENO

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Educational Background

August 2015 to August 2019: Civil and Architectural Department- University of Wyoming (UW)

Ph.D. Civil Engineering

2007 to 2013: Jomo Kenyatta University of Agriculture and Technology (JKUAT), Kenya.

BSc. Agricultural Engineering

2007 to 2012: Jomo Kenyatta University of Agriculture and Technology (JKUAT), Kenya.

BSc. Soil, Water and Environmental Engineering. First Class Honors.

Employment Experience

Nov 2021 – now: **Program Coordinator**, Postgraduate Degree (MSc.), Civil Engineering Department, Dedan Kimathi University of Technology, Nyeri, Kenya

June 2021 – now: **Director**, Water Resources Conservation Center (Dedan Kimathi University of Technology)

January 2021 to present: **Lecturer**, Civil Engineering Department, Dedan Kimathi University of Technology, Nyeri, Kenya

February 2020 to present: **Part-time Lecturer**, (*Fluid Mechanics II, Hydrologic Engineering, Water Quality Engineering*) Mining and Mineral Processing Engineering Department, Taita Taveta University, Voi, Kenya

October 2019 to December 2019: **Part-time Lecturer**, (*Geospatial Technologies*) Civil and Environmental Engineering Department, Meru University of Science and Technology, Kenya

August 2015 to August 2019: Research Assistant, Civil and Architectural Department- UW

August 2015 to August 2019: Teaching Assistant (for *Hydraulics Engineering* – UW)

Achievements and Awards

June 2019: *Travel Award:* 2019 CUAHSI Hydroinformatics Conference

February 2019: *Travel Award:* CUAHSI-NCAR Workshop: The Community WRF-Hydro Modeling

October 2018: PyTorch Scholarship Challenge (Facebook) – Machine Learning Short Course

June 2019: **Reviewer** - Journal of Water and Climate Change

Research & Interest

- Water Engineering
- Hydraulics Engineering
- Vadose zone Engineering & Soil Physics
- Groundwater Engineering
- Surface hydrological modelling
- Applied Artificial Intelligence and Machine Learning
- Bayesian Statistics
- High-performance computing

Technical Experience

- Quantitative Experience

- Preferred coding language (good knowledge): Python and R; Windows and UNIX
- Others: FORTRAN, Java, HTML, High-performance computing (Basic knowledge)
- GIS – ArcGIS, QGIS, and R; MODFLOW – FloPy, FREEWAT, HYDRUS 1D, Matlab, Git

- Leadership Experience

- June 2021 – now: Director, DeKUT Water Resources Conservation Center (Dedan Kimathi University of Technology)
- August 2016- August 2019: Student Ambassador, College of Engineering and Applied Science, UW

- Field Experience

- Groundwater: Collecting groundwater data for irrigation wells – based on telemetry
- Vadose zone measurement using: Neutrone probe, Watermark sensors, TDR

- Laboratory Experience

- Soil moisture time-domain reflectometer and gravimetric methods
- Hydraulics Engineering: Pump performance test and hydraulic jump experiments

Publications

Research-gate: <https://www.researchgate.net/profile/Kevin-Achieng>

Google Scholar: <https://scholar.google.com/citations?user=DNYxMb4AAAAJ&hl=en>

ORCID iD is [0000-0001-7815-9095](https://orcid.org/0000-0001-7815-9095)

Achieng, K.O., 2021. Averaging multiclimatic model prediction of streamflow in the machine learning paradigm, in: *Advances in Streamflow Forecasting*. Elsevier, pp. 239–262. <https://doi.org/10.1016/B978-0-12-820673-7.00010-X>

Achieng, K.O., 2019a. Modelling available water capacity of topsoil in a Bayesian paradigm. *Environ. Model. Softw.* 120, 104500. <https://doi.org/10.1016/j.envsoft.2019.104500>

Achieng, K.O., 2019b. Evaluating pump performance using laboratory observations and machine learning. *ISH J. Hydraul. Eng.* 1–8. <https://doi.org/10.1080/09715010.2019.1608596>

Achieng, K.O., 2019c. Modelling of soil moisture retention curve using machine learning techniques: Artificial and deep neural networks vs support vector regression models. *Comput. Geosci.* 104320. <https://doi.org/10.1016/J.CAGEO.2019.104320>

Achieng, K.O., Enderlin, E., 2021. 1-Step ahead 5-Day Forecast of Normalized Burn Ratio using a Combination of Sentinel-2 and Machine Learning, in: *EGU General Assembly 2021*, Online, EGU21-6980.

Achieng, K.O., Zhu, J., 2021. Estimation of groundwater recharge using multiple climate models in Bayesian frameworks. *J. Water Clim. Chang.* <https://doi.org/10.2166/WCC.2021.345>

Achieng, K.O., Zhu, J., 2019a. Application of Bayesian framework for evaluation of streamflow simulations using multiple climate models. *J. Hydrol.* 574. <https://doi.org/10.1016/j.jhydrol.2019.05.018>

Achieng, K.O., Zhu, J., 2019b. Modelling Groundwater Recharge with Multiple Climate Models in Machine Learning Frameworks, in: *CUAHSI Conference on Hydroinformatics July 29 - 31, 2019 Brigham Young University*. Provo, Utah.

Achieng, K.O., Zhu, J., 2018. RCM-based Analysis of Changes in Groundwater Recharge in North America in Mid-21st Century. *Am. Geophys. Union, Fall Meet. 2018*, Abstr. #H11T-1723.

Achieng, K.O., Zhu, J., 2017. Climatic Models Ensemble-based Mid-21st Century Runoff Projections: A Bayesian Framework. *Am. Geophys. Union, Fall Meet. 2017*, Abstr. #H41H-0771.

Achieng, K.O., Zhu, J., 2016. Hysteresis and Uncertainty of Soil Retention Parameters subjected to Monotonic Wetting and Drying. *Am. Geophys. Union, Fall Meet. 2016*, Abstr. #H23D-1572.

Achieng, Kevin O, Zhu, J., Achieng, K. O., Zhu, J., 2019. Change in Future Groundwater Recharge: Multiple Climate Models and Machine Learning Frameworks. *AGUFM 2019*, H41S-2011.

Ben, R., Achieng, K.O., 2016. Academic Planning Committee – Annual Report.

Peters-Lidard, C.D., Clark, M., Samaniego, L., Verhoest, N.E.C., van Emmerik, T., Uijlenhoet, R., Achieng, K.O., Franz, T.E., Woods, R., 2017. Scaling, Similarity, and the Fourth Paradigm for Hydrology. *Hydrol. earth Syst. Sci.* 21, 3701–3713.
<https://doi.org/10.5194/hess-2016-695>

References

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James Wambua, Ph.D. E-mail: wambuak@gmail.com , Phone: +254-722560231

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