

## CURRICULUM VITAE

### PERSONAL INFORMATION

**Name:** Martin Kyereh Domfeh, Ph.D.

**Gender:** Male

**Profession:** Research Fellow

**Marital Status:** Married

**Address:** EORIC-UENR P. O. Box 214 Sunyani, Bono Region, Ghana West Africa.

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**E-mail:** mardomfeh@gmail.com/martin.domfeh1@uenr.edu.gh

**Date of Birth:** 31<sup>st</sup> August 1988

**Nationality:** Ghanaian

**ORCID:** 0000-0001-6612-7301

### CAREER OBJECTIVE

With about 10 years of experience in engineering-related studies and research, I have gained an in-depth understanding and skill on various subjects related to engineering. Based on this experience, I seek to explore this field in order to come out with innovations and sustainable solutions to societal problems.

### EDUCATION

2016 to 2020 **Ph.D., Sustainable Energy Management**

University of Energy and Natural Resources- Sunyani, Ghana

Ph.D. Research title: “**Numerical simulation of free surface vortices at single and multiple intakes for hydropower plants using OpenFOAM**”

Supervisors: Prof. Gavin Tabor, Dr. Samuel Gyamfi, Dr. Mark Amo-Boateng, Dr. Eric Antwi Ofosu and Prof. Robert Andoh

2018 to 2019 **Other Advanced Studies in Engineering**

University of Exeter - Exeter, UK

NB: For my Ph.D. Research study

2012-2014 **MSc, Water Resources Engineering and Management**

Kwame Nkrumah University of Science and Technology-Kumasi Ghana

Dissertation title: “**Assessment of the water balance of the Barekese Reservoir in Kumasi, Ghana**”

Supervisor: Dr. F.O.K. Anyemedu

Overall grade: A

2007-2011     **BSc, Civil Engineering**

Kwame Nkrumah University of Science and Technology-Kumasi Ghana

Dissertation title: “**Customer satisfaction and complaints with regard to water delivery service of GWCL: a case study of Adum and Nhyiaeso in Kumasi**”

Supervisor: Dr. Richard Buamah

Overall weighted average: 67.12/100

## **CURRENT AND PREVIOUS POSITION(S) & RESEARCH ACTIVITIES**

Dec 2020 to date     **Research Fellow, EORIC-UENR**

Dec 2018 to 2020     **Assistant Research Fellow, EORIC-UENR**

2015-2018             **Internship with High Performance Computing Division of Earth Observation Research & Innovation Centre-UENR-Sunyani** Computational Fluid Dynamics Research

- Assisted in lectures
- Assisted in the development of project proposals
- Conducted research studies
- Writing of articles for publication

1<sup>st</sup>-30<sup>th</sup> June 2017     **Short term research visit at the Nanotechnology and Water Sustainability Research Unit, University of South Africa**

- Mentoring of two (2) graduate students in Computational Fluid Dynamics using the COMSOL Multiphysics Software for modelling water transport across membrane systems

2011-2012             **Interim Project Research Assistant to Dr. Richard Buamah**  
**Step chlorination research project on Kumasi Water Supply Distribution Network**

- Conducted water quality tests

2011-2012             **Assistant Research Technician (National Service Personnel) - Building and Road Research Institute (BRRI), Traffic and Transportation Division**

- Assisted in data collection and analysis during the following projects
  - I. Statistics for Road Traffic Crashes in Ghana for 2011
  - II. Research into drivers’ understanding of road signs in Ghana

## **Workshops and Training Programs**

Resource Personnel (Facilitator) in the following training programs organized by the Earth Observation Research & Innovation Centre-UENR:

- Training Program in Introduction to Computational Fluid Dynamics using OpenFOAM held at UENR- Sunyani (10<sup>th</sup> – 13<sup>th</sup> Feb. 2020)
- Training Program in Introduction to Computational Fluid Dynamics held at UENR- Sunyani (24<sup>th</sup>-26<sup>th</sup> April 2017)
- Training Program in Flood and Drought Modelling with Earth Observation held at Accra (22<sup>nd</sup>-24<sup>th</sup> August 2016)
- Training Program in Climate Change with Space Science held at Accra (15<sup>th</sup> -17<sup>th</sup> August 2016)

## **HONOURS AND AWARDS**

2018 Commonwealth Scholarship, funded by the UK Government

## **PROJECTS/GRANTS**

- Energy Audit Assessment of Ghana Nuts Company Limited, Techiman-Bono East Region (May 2017).
- Team member, AFIS Project (2018-2020):-The funded project sought to upscale the AFIS project by providing farmers and necessary stakeholders with early fire detection and alert information in the form of voice and SMS alerts as well as smartphone applications. This was achieved using the Advanced Fire Information System (AFIS). Total Project Sum: GHC291,250

## **TEACHING ACTIVITIES**

2019- to date Civil and Environmental Engineering Department-UENR, Sunyani, Ghana  
Courses: Computational Fluid Dynamics, Soil Mechanics, Numerical Methods and Analysis, Foundation Engineering, Thermodynamics

**2021-** to date Regional Centre for Energy and Environmental Sustainability UENR, Sunyani, Ghana. Ph.D./MSc. Environmental Engineering Management  
Course: Water Resources Engineering and Management

## **RESEARCH AND TEACHING INTERESTS**

Renewable Energy Engineering, Hydropower Engineering, Computational Fluid Dynamics, GIS and Remote Sensing, Water Resources Engineering, Hydrology and Meteorology, Integrated

Water Resources Management, Irrigation Engineering, Drainage Engineering, Reservoir Engineering, Meteorology, Environmental Engineering

## PUBLICATIONS

### Published Papers

- Domfeh, M. K., Anyemedu, F. O. K., Anornu, G. K., Adjei, K. A., & Odai, S. N. (2015). Assessment of the water balance of the Barekese reservoir in Kumasi, Ghana. *Journal of Science and Technology (Ghana)*, 35(3), 34-51. <http://dx.doi.org/10.4314/just.v35i3.4>
- Nyantakyi, Emmanuel Kwesi, Abena Obiri-Yeboah, Ghadafi Abdullai Mohammed, **Martin Kyereh Domfeh**, and Nana Kwame Obeng-Ahenkora (2020). "Partial Replacement of Cement with Glass Bottle Waste Powder in Concrete for Sustainable Waste Management: A Case Study of Kumasi Metropolitan Assembly, Ashanti Region, Ghana." *Journal of Civil Engineering Research*, (2020), 10(2): 29-38. DOI: 10.5923/j.jce.20201002.01
- Nyantakyi, Emmanuel Kwesi, Abena Obiri-Yeboah, Nana Kwame Obeng-Ahenkora, **Martin Kyereh Domfeh**, and Ghadafi Abdullai Mohammed (2020). "Investigating Occupational Health and Safety of Workers on Selected Construction Sites in the Sunyani Municipality, Ghana." *Journal of Safety Engineering* 9, No. 1 (2020): 1-8. DOI: 10.5923/j.safety.20200901.01
- Martin Kyereh Domfeh, Samuel Gyamfi, Mark Amo-Boateng, Robert Andoh, Eric Antwi Ofori and Gavin Tabor. Numerical simulation of an air-core vortex at a hydraulic intake using OpenFOAM. *Scientific African* (2020), Volume 8, July 2020, e00389. <https://doi.org/10.1016/j.sciaf.2020.e00389>
- Martin Kyereh Domfeh, Samuel Gyamfi, Mark Amo-Boateng, Robert Andoh, Eric Antwi Ofori and Gavin Tabor. Free surface vortices at hydropower intakes: - A state of the art review. *Journal of Scientific African*, Volume 8, July 2020, e00355. <https://doi.org/10.1016/j.sciaf.2020.e00355>
- Martin Kyereh Domfeh, Samuel Gyamfi, Mark Amo-Boateng, Robert Andoh, Eric Antwi Ofori, and Gavin Tabor. "Numerical Simulation of an Air-Core Vortex and Its Suppression at an Intake Using OpenFOAM." *Fluids* 5, no. 4 (2020): 221. <https://doi.org/10.3390/fluids5040221>

## **Book Chapters**

- Sowa, D. M., Amuzu-Sefordzi, B., Baddoo, T. D., Amo-Boateng, M., & Domfeh, M. K. (2018). Climate Change and Hydrovision. In *Sustainable Hydropower in West Africa* (pp. 1-28). Academic Press.  
<https://doi.org/10.1016/B978-0-12-813016-2.00001-0>
- Yuebo, X., Kabo-bah, A. T., Kabo-bah, K. J., & Domfeh, M. K. (2018). Hydropower Development-Review of the Successes and Failures in the World. In *Sustainable Hydropower in West Africa* (pp. 53-61). Academic Press  
<https://doi.org/10.1016/B978-0-12-813016-2.00004-6>
- Ofosu, E. A., Amo-Boateng, M., Domfeh, M. K., & Andoh, R. (2018). Re-engineering Hydropower Plant for Improved Performance. In *Sustainable Hydropower in West Africa* (pp. 189-195). Academic Press.  
<https://doi.org/10.1016/B978-0-12-813016-2.00012-5>

## **Scientific Book**

- Martin Domfeh (2016). *Water Balance of the Barekese Reservoir in Kumasi, Ghana*, Lambert Academic Publishing. ISBN (978-3-659-88018-6). Available at Amazon.com

## **Conference Papers**

- Martin Kyereh Domfeh, Samuel Gyamfi, Mark Amo-Boateng, Robert Andoh, Eric Antwi Ofosu and Amos Kabo-bah (2017). Intake flow simulation and optimisation for Akosombo Hydropower Project using Computational Fluid Dynamics: Concept and Methodology. International Conference on Climate Change and Sustainable Development in Africa (ICCCSDA 2017), Sunyani-Ghana, 25<sup>th</sup>-28<sup>th</sup> July, 2017.
- Martin Kyereh Domfeh , Samuel Gyamfi, Mark Amo-Boateng, Robert Andoh, Eric Antwi Ofosu, Gavin Tabor (2020). “Numerical simulation of an air-core vortex and its suppression at an intake using OpenFOAM.” The 15th OpenFOAM Workshop, Arlington, Virginia, USA, June 22 - 25.

## **Conference Presentation**

- Martin K. Domfeh, Robert Andoh, Samuel Gyamfi, Mark Amo-Boateng & Eric A. Ofosu (2017). Water Resources and Challenges associated with Hydro Power in Ghana. Water Africa & West Africa Building & Construction Exhibition and Seminars Ghana 2017, Sunyani, Ghana, 14th-16th June 2017.

## **LEADERSHIP AND ADMINISTRATIVE EXPERIENCE**

- President of Good Shepherd Old Students' Association (GOSA)-Techiman (2001 to 2013)
- Executive Member/Unity Hall Representative of the National Union of Presbyterian Students Ghana (NUPS-G) KNUST Coordinating Branch (2010-2011)
- President of Techiman Students' Union KNUST Branch (2009-2010)

## **LANGUAGE SKILLS**

- English
- Akan (Twi)

## **TECHNICAL SKILLS**

General skills in statistics and computing. Specific expertise and interests in:

- Programming: C++, Matlab, R
- Statistical software: SPSS, Stat-Plus, Veuz, R-studio
- Computer platform: Windows (Vista, 7, 8, 10), Linux (Ubuntu)
- Engineering, HPC and Modeling software: OpenFOAM, Salome, Paraview, FreeCAD, SOLIDWORKS, COMSOL Multiphysics, WEAP, CROPWAT, LEAP, AUTOCAD, ArcGIS, ILWIS, Erdas Imagine, ETABS, and Hommer
- Text formatting and office computing software: Microsoft Office Suit, Libre Office

## **STRENGTHS/SKILLS**

- Programming
- High Performance Computing
- Excellent Verbal and Communication skills
- Self-motivation, Team spirit and Innovation.
- Leadership qualities.

## **HOBBIES / INTERESTS**

- Reading publications and books

## **REFEREES**

### **Prof. Robert Andoh**

President and CEO, AWD Consult. Inc.  
32 Vista Drive  
South Portland, ME 04106,  
USA

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**Dr. Samuel Gyamfi**

Senior Lecturer

Energy and Petroleum Engineering Department

Deputy Director, Regional Center for Energy and Environmental Sustainability (RCEES)

Head, UENR Energy Group

University of Energy & Natural Resources - Sunyani-Ghana

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**Dr. Mark Amo-Boateng**

Lecturer, Department of Energy & Environmental Engineering

Ag. Head, Earth Observation Research & Innovation Centre

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**Dr. Amos T. Kabobah**

Senior Lecturer and Head, Department of Civil & Environmental Engineering

Associate Editor, Journal of Energy & Natural Res. Mgt (JENRM)

University of Energy & Natural Resources - Sunyani-Ghana

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