

Derrick Mirindi

+1667-381-7575 · demir1@morgan.edu

Center for the Built Environment and Infrastructure Studies
5299 Perring Pkwy, Baltimore, MD 21214

Derrick Mirindi, a civil engineer and member of the American Institute of Architecture Students (AIAS), American Society of Civil Engineers (ASCE), and Construction Management Association of America (CMAA), is a doctoral candidate in architecture, urbanism, and built environments with a strong foundation in civil engineering and hydroinformatics. His research interests lie in the intersections of infrastructure, artificial intelligence (AI), machine learning (ML), and remote sensing, with a focus on analyzing urban nexus analysis through remote sensing and nexus assessment and modeling, as well as combining structural materials for construction in Building Information Technology (BIM). Derrick is committed to advancing knowledge in sustainable infrastructure solutions and is seeking opportunities to collaborate, teach, and further his research. He has a diverse educational background, including a Master of Science in Water Science and Engineering with a specialization in hydroinformatics from the Netherlands, a Master of Science in Civil Engineering with a focus on structures from Kenya, and a Bachelor of Science in Civil Engineering from Burundi. Derrick's research experience includes roles as a research assistant at Morgan State University, where he conducts literature reviews, designs research studies, and collaborates with other researchers. He has published various articles focusing on waste materials for construction, artificial intelligence, and building information technology.

KEY COMPETENCIES

- Expertise in Artificial Intelligence (AI), Machine Learning (ML), Geographic Information System (GIS) and Information Technology
 - Proficient in data analysis, literature reviews, and research study design
 - Skilled in selecting materials and work methods for construction projects, with a focus on sustainability and safety.
 - Experienced in supervising construction sites, ensuring proper execution and schedule adherence, as well as organizing site meetings and gathering field feedback.
 - Experienced in building partnerships with organizations, stakeholders, and communities to support water and sanitation projects, collaborating with local governments, NGOs, and other groups.
 - Proficient in various software and tools, including Python, ArcGIS, QGIS, SAP2000, Archicad, SPSS, CityEngine, etc.
 - Experienced in coordinating tasks involving community engagement to address issues, solve problems, and make decisions that affect individuals, groups, or communities.
-

PROFESSIONAL EXPERIENCE

Morgan State University, School of Architecture and Planning, USA **Oct 2023 - Present**
Research Assistant

Assisting the Dean in developing and conducting a summer camp program in the School of Architecture and Planning at Morgan State University focused on engaging Black, Indigenous, and People of Color (BIPOC) grade 4-12 students in creative, project-based learning exercises to promote future academic success in STEAM fields.

Baltimore Social-Environmental Collaborative (BSEC), USA **Oct 2023 - Present**
Research Assistant and Citizen Climate Science Program Coordinator

Developing and conducting a summer camp program in Baltimore in collaboration between BSEC's community engagement partners and BSEC theme teams that will educate citizen climate scientists in collecting, storing, and testing samples and disseminating data to participate in the sustainable development of their community.

IHE Delft for Water Management, The Netherlands **April 2023 - July 2023**
Research Assistant and Citizen Climate Science Program Coordinator

Conducting in-depth literature reviews, designing research studies, collaborating with other researchers, and writing a scientific paper related to the Water-Food-Energy Nexus in the Democratic Republic of Congo. Using a qualitative and quantitative assessment. Develop a system dynamic model (SDM) using Python, Remote Sensing and STELLA to predict future water, food, and energy demand by 2050.

Civil Society, Bukavu, DR Congo **May 2016 - May 2021**
Volunteer

Assisting the population in conflict zones by providing access to basic education and identifying challenges faced by the community and addressing them through informed decision-making, collaborating with teams to facilitate communication, idea sharing, and collective efforts.

Juja Amani, Kenya **May 2020 - August 2021**
Civil Engineer Site Manager

Selection of eco-friendly materials and work methods for construction projects and supervising the execution of projects, ensuring adherence to deadlines, budgets, and quality standards. In addition, promote sustainable water and sanitation systems, including advocating for water quality regulations and infrastructure investment incentives.

Architecture and Public Works Company, DR Congo **June 2018 - September 2019**
Civil Engineer Site Manager

Supervising construction sites, ensuring proper execution, and ensuring schedule adherence. Organizing site meetings to discuss work programs, objectives, and directives and gather field feedback from the team. Monitoring the construction sites daily to ensure correct work execution and schedule adherence.

Congo Consulting Engineer Company, DR Congo **January 2015 - June 2018**
Civil Engineer Site Manager

Designing civil engineering projects using calculations and simulations to determine optimal approaches. Assessing water and sanitation systems to identify areas for improvement and implement new systems. Developing plans for enhancing water and sanitation systems, including budgeting, scheduling, and resource identification. Additionally, building partnerships with organizations, stakeholders, and communities to support water and sanitation projects and collaborating with local governments, NGOs, and other groups.

EDUCATION

Doctor of Philosophy in Architecture, Urbanism, and the Built Environments

Morgan State University, Maryland, USA
August 2023 – Present

Master of Science in Water Science and Engineering Specialization: Hydroinformatics: Modelling and Information Systems for Water Management

IHE Delft for Water Management, UNESCO – Delft, Netherlands
October 2021 - April 2023

Master of Science in Civil Engineering: Structural Option

Pan African University Institute for Basic Sciences, technology and Innovation (PAUSTI)
and Jomo Kenya University for Agriculture and Technology (JKUAT)– Juja, Kenya
February 2020 - April 2022

Bachelor of Science in Civil Engineering: Structures

University of Burundi – Bujumburu, Burundi
October 2011 - October 2016

High School Diploma in Mathematics and Physics

Aljajiri College – Bukavu, DR Congo
September 2005 - July 2011

PUBLICATION

- Physico-Mechanical Properties of Particleboards Produced from Macadamia Nutshell and Gum Arabic (<https://doi.org/10.3390/app112311138>). [Link](#)
 - Structural Performance of Particleboard Made From Macadamia Nutshells With Gum Arabic Composite. [Link](#)
 - Exploring the Water-Energy-Food (WEF) nexus : A case study of household consumption in the city of Goma (D.R. Congo). Link: [Repository IHE Delft Institute for Water Education](#)
 - Transdisciplinary Collaboration in Architecture, Urbanism, and Civil Engineering (<http://dx.doi.org/10.2139/ssrn.4756618>)
 - Navigating Construction Project Outcomes: Synergy through the Evolution of Digital Innovation and Strategic Management. ISSN: 2454-5031. [Link](#)
 - Rethinking Sustainability: Towards an Open System Approach. <https://doi.org/10.5281/zenodo.11088501> [Link](#)
 - Harvesting Alternative Energy: Exploring Energy, Human Power, Animal Body Heat, and Noise as Sustainable Sources. <https://doi.org/10.5281/zenodo.11088585>. [Link](#)
-

MEMBERS AFFILIATIONS

- American Institute of Architecture Students (AIAS) - Member - ID: 003Nt00000A7eJ7IAJ
 - American Society of Civil Engineers (ASCE) - Member - ID: 000012451910
 - Deep Foundations Institute (DFI) - Member - ID: 43507
 - Construction Management Association of America (CMAA) - Member
 - National Society of Professional Engineers (NSPE) - Member
-

CERTIFICATIONS & ACHIEVEMENTS

- ICT Program for Individuals with Disabilities, Ministry of Telecommunication, Egypt, 2019.
 - XXII World Congress on Safety and Health at Work, Canada, 2021.
 - SRI Award for Sustainability Research and Innovation: Sustainability Research + Innovation Prize, BELMONT FORUM, Australia, 2021.
 - QGIS Certification, IHE Delft, 2021.
 - TCF Canada (French Proficiency) - C1 Level, Alliance Française den Haag, Netherlands, 2021.
 - Academic English Course, IHE Delft, 2021.
 - EGU General Assembly, Vienna, Austria, 2022.
 - Peer-to-Peer Learning Forum Participation, International Training Center, Italy, 2022.
 - Facilitator, WEF Nexus Masterclass, IHE Delft, 2023.
-

GRANT

Euro 2500, Dutch Rotary Foundation. Title of the project: "Biomimicry-Based Reforestation for Water Restoration and Co-Benefits in Kenyan Forests" (March 2024 - March 2025), CO-PI.

SKILLS

Python, ArcGIS, AUTOCAD, HECRAS, QGIS, SAP2000, MIKE11, STELLA, ArchiCAD, Robot Structural Analysis, and SPSS

LANGUAGES

English, French, Swahili, Lingala, Kinyarwanda, Kirundi, and Dutch