

Shinga C. Madzima

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BSc (Hons) Mining Engineering (Upper Second Class 2:1)

Project Title : Geospatial Techniques in Tailings Management (Distinction 1)

RESEARCH EXPERIENCE

Mimosa Mining Company (Zvishavane, Midlands Province, Zimbabwe , 2022- 2024) Intern

- Developed waste management protocol that leverages remote sensing in monitoring of ground water, soil moisture and water presence around Tailings Storage Facilities (TSFs) enhancing compliance to auditable requirement 10.1 of the Global Industry Standard on Tailings Management (GISTM) with estimated accuracy of 99.6%.

Husikisiki Studio (Harare, Harare Province, Zimbabwe, 2020-2022) Intern

- Interpreted data that streamlined a framework for environmental and Cultural Stewardship in Digital Audio Production with SDG 11 Target 11.4 on Culture and Heritage for more sustainable and inclusive open cities and societies.
- Expanded reach to more than 3000 individuals globally, with specific networks in Eswatini (Swaziland), Geneva (Switzerland), Johannesburg (South Africa) and Marseilles (France) thereby achieving maximum total per capita expenditure on the preservation of environmental and cultural heritage, by private funding at national level.

PRESENTATIONS AND PUBLICATIONS

NSSA Occupational Health and Safety Conference (Victoria Falls, Matebeleland, Zimbabwe 2024) Lead

- Addressed over 300 stakeholders from the Office of the Vice President of Zimbabwe, Ministry of Mines and Mining Development and Ministry of Public Service, Labour and Social Welfare on geospatial techniques in mining in the Southern African Region.

SAIMM Annual Students Colloquium (Johannesburg, Gauteng, South Africa 2024) Lead

- Briefed delegations of over 250 young professionals from Namibia, South Africa and Zimbabwe on use of Remote Sensing to assess soil moisture at platinum mines.

International Symposium on Earth Science and Technology (CINEST) (Fukuoka, Japan 2024) Lead

- Presented research on green mining techniques to an international symposium of more than 5000 people facilitated through Leading an Enhanced Notable Geothermal Optimization (LENGO), Science and Technology Research Partnership for Sustainable Development (SATREPS), Smart Mining Special Program, and Cooperative Program for Resources Engineering (CoPRE), Kyushu University.

EXHIBITIONS

Creative Economy Week Zimbabwe (Harare, Harare Province, Zimbabwe 2024) Panelist

- Delivered research on environmental and cultural stewardship to an audience with an estimated reach of 10,000 unique profiles over a seven day period documented in The Bulawayo Chronicle, AMH The Standard, GREEDY SOUTH and GLAMOUR South Africa.

FELLOWSHIPS AND AWARDS

SAIMM Annual Students Colloquium (2024) (Geospatial Techniques in Tailings Management)

- Awarded Best in Mining First Runner Up

ZICT Excellence Awards (2024) (Geospatial Techniques in Tailings Management)

- Nominated for outstanding contributions in the field of technology and innovation.

WEBSITES

www.tsfmonitor (2024) Developer

- Developed and designed TSFMONITOR, a web interface dedicated to monitoring Tailings Storage Facilities (TSFs) over a ten-year period from March 2014 to March 2024. Created a change detection model with a high accuracy level. Additionally, the platform attracted an average of 80 new visitors per month over a six-month period.

www.rznj.com(2023) Developer

- Developed and launched a web based platform dedicated to promoting that promoted SDG 12 Target 12.8 on Universal Understanding of Sustainable Lifestyles, allowing education for sustainable development to be mainstreamed to an audience of over which achieved an average of over 50 unique visitors per month over a 12 month period.

RESEARCH INTERESTS

Geospatial Microbiology| Bioremediation | Ecohydrology | Environmental Engineering | Machine Learning| GIS and Remote Sensing

PROGRAMMING LANGUAGES, FRAMEWORKS AND DEVELOPER TOOLS

HTML | SQL | Python | R | Matlab| NumPy | Rasterio | Pytorch | Scikitlearn | Tensorflow | Git | GNU/Linux| ArcGIS| QGIS | Google Cloud

LANGUAGES

Afrikaans | English | French | Ndebele | Spanish | Zulu