

Fadzai Zivanai

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SUMMARY

Civil Engineer specializing in geotechnical research and innovative ground improvement techniques, with a strong focus on infrastructure and public safety. Experienced in leading projects, applying methodical and detail-oriented approaches, and delivering results from concept through completion. Highly motivated, adaptable, and committed to continuous learning and professional growth.

EDUCATION

PhD. Eng Civil and Environmental Engineering Portland State University, Portland, Oregon, USA	January 2026 - present
MS. Eng Civil and Environmental Engineering Portland State University, Portland, Oregon, USA	April 2024 – December 2025
B.Eng. Hons Civil and Water Engineering National University of Science and Technology (NUST), Bulawayo, Zimbabwe	Graduated November 2021 Upper Second Class

ACHIEVEMENTS/AWARDS

2025 G.A. Harris Fellowship	Awarded 2025
Civil & Environmental Engineering Department Scholarship 2024-2025 academic year	Awarded 2025
Carl Green Endowed Graduate Fellowship 2024-2025 academic year	Awarded 2025
Civil and Environmental Engineering Department Service Award	Awarded 2025
Graduate Assistantship, Portland State University, Portland, OR, USA	Awarded 2024
Mat Haug Scholarship for the 2024-2025 Academic Year	Awarded 2024

AFFILIATIONS & TECHNICAL SKILLS

Affiliations: American Society of Civil Engineers (ASCE), Earthquake Engineering Research Institute (EERI), ASCE Geo-Institute Graduate Student Organization (ASCE GI GSO), Zimbabwe Institution of Engineers (ZIE)

Design and Applications: Slope W, FLAC, Prokon, MATLAB, Revit, AutoCAD, Python

Problem solving: Design Thinking approach, Mathematical reasoning, and Algorithmic thinking.

Strong background: Geotechnical Engineering, Structural Design and Analysis

WORK EXPERIENCE

Teaching and Research Assistant – Portland State University, Portland, OR, USA	April 2024 – Present
- Teaching geotechnical laboratories and grading laboratory reports and assignments - Carrying out research work on mitigation of liquefaction in fine-grained soils	
Graduate Trainee – Prostruct Consulting Engineers, Harare, Zimbabwe	July 2021 - February 2024
Civil designs, structural designs, and project management of various projects	
Intern – Prostruct Consulting Engineers, Harare, Zimbabwe	August 2019 - September 2020
Civil and structural designs and assessments of multi-story buildings.	

PROJECTS AND RESEARCH EXPERIENCE

Microbially induced desaturation MID in liquefiable soils, Portland, OR, USA

April 2024 - Present

Graduate Researcher at Portland State University

- Using MID in ground improvement
- Evaluating the longevity of the MID gas in desaturated silty soils to mitigate liquefaction.
- Gather and monitored in-situ data using Electrical Resistivity Tomography (ERT), geophones and Teros 12 sensors and processed the data. Data collected included soil's volumetric water content, pressure wave and shear wave velocities, water table levels and soils electrical resistance.
- Analyzed the Nuclear Magnetic Resonance (NMR) data to evaluate soil saturation and gas present in the soil.
- Collected and tested water and soil samples for bulk and pore water fluid electrical conductivity and gases using gas and ion chromatograph (GC and IC) in the laboratory.
- Prepared and tested soil specimens for consolidation and liquefaction analyses within the GeoComp Shear Trac-II Cyclic Direct Simple Shear (CDSS) and GeoComp LoadTrac-III devices.
- Performed laboratory experiments to determine soil classification and grain size analysis

Field Microbially Induced Desaturation (MID) retreatment of liquefiable soils , Portland, OR, USA

June 2025 - August 2025

- Using MID to retreat liquefiable soils on a field scale to mitigate liquefaction in fine-grained soils
- Field site set-up and instrumentation of the site
- Monitoring and evaluating the longevity of the MID gas in desaturated silty soils to mitigate liquefaction.
- Analyzing collected data

RGM International Airport, Harare, Zimbabwe

May 2022 - February 2024

Assistant Site Engineer

- Reviewing designs and inspection of construction works
- Conducting site investigation and data analysis
- Monitoring weekly progress and preparation of progress reports
- Supporting general Occupational Health and Safety in the organization

National Oil Infrastructure Company of Zimbabwe (NOIC)

June 2022 - February 2024

Junior Structural Engineer

- Planning and designing and analysis of concrete and steel structural members
- Issuing structural drawings and engineering plans
- Conducting site inspection of the construction works
- Gathering data, compiling reports, and delivering presentations to relevant stakeholders

Harare-Beitbridge Highway Road, Zimbabwe

April 2022 - February 2024

Junior Structural Engineer

- Inspecting the condition of the existing road culverts and bridges along the highway road
- Designing of underpass culverts along the highway road
- Monitoring progress and preparing progress reports
- Supporting general Occupational Health and Safety in the organization

Undergraduate Researcher

- Conducted a literature review on water supply and demand for urban water supply systems
- Deduced data from historical records of local municipalities
- Performed data analysis and presentation

CO-CURRICULAR ACTIVITIES AND VOLUNTEERING

National Society of Black Engineers (NSBE), Portland State University Chapter

President, Nov 2024 – Present

- Directed academic support initiatives, including scholarship sourcing and professional development programs.
- Organized workshops and seminars to enhance technical knowledge and career readiness for Black engineering students.

American Society of Civil Engineers (ASCE) Geo-Institute, Graduate Student Organization

President, Oct 2025 – Present

- Led organization of seminars and symposiums for graduate geotechnical students across multiple universities.
- Coordinated faculty presentations, facilitating professional networking between students and practicing engineering.

Outreach Coordinator, Apr 2024 – October 2025

- Implemented outreach programs to educate middle and high school students on geotechnical engineering and STEM applications.

Earthquake Engineering Research Institute (EERI) Student Leadership Council

Outreach Chair, Jun 2024 – Present

- Managed global seismic design competitions for undergraduate students, promoting research and knowledge-sharing in seismic hazard mitigation.

TRAINING WORKSHOPS AND CONTINUING PROFESSIONAL DEVELOPMENT COURSES ATTENDED

NHERI@UTEXAS Workshop: Field Nonlinear Cyclic Shear Measurements in Soil, Portland, OR, USA September 2025

The NHERI@UTexas workshop hosted by University of Texas Austin in collaboration with Portland State University and the Center for Bio-mediated and Bio-inspired Geotechnics, highlighted the potential use of NHERI@UTexas equipment for:

- Direct-push crosshole (DPCH) seismic testing to evaluate small-strain compression (P-wave) and shear (S-wave) velocities,
- Field nonlinear cyclic shear measurements using a helical pile excited across a range of small-to-large strain level; and
- Monitoring shear wave velocities and porewater pressure responses.

High Performing Computers (HPC) Bootcamp

August 2025

- This was a short training program designed to teach students and researchers how to use High-Performance Computing (HPC) systems effectively. I was involved in a project to train and use large language models for scientific computing workflows.

CONTEC Geotechnical Site Investigation Short Course

November 2024

- This was a course on how to conduct cone penetration tests (CPT), analyze and practically apply the test results. It covered topics that included managing risk through an integrated site characterization approach for geotechnical practitioners.

Field Work Safety Training

May 2024 & June 2024

Chemistry Stockroom, Portland State University

- These training courses covered a multitude of topics related to field work, laboratory work, including cultural resources and inadvertent discoveries; safety culture, emergency action plans and determining risk assessment and emergency preparedness including first aid basics