

T. B. Devmi Deshika Gamage

Department of Civil and Environmental Engineering and Earth Sciences, University of Notre Dame,
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EDUCATION

University of Notre Dame du Lac

Ph.D., Department of Civil and Environmental Engineering and Earth Sciences Notre Dame, IN
August 2022-present

Advisor: Prof. Harindra J. S. Fernando

University of Peradeniya

B.Sc. (Honors), Department of Geology Peradeniya, Sri Lanka
June 2021

- **First Class Honors: 3.91/4.00**
- Ranked **5th position out of 182** graduates of B.Sc. Honors Study Programme
- **1st position** in B.Sc. Honors in Geology Study Programme
- Minors: Physics, Computer Science

RESEARCH EXPERIENCE

University of Notre Dame du Lac

Graduate Research Assistant, Department of Civil and Environmental Engineering and Earth Sciences Notre Dame, IN
August 2022-Present

*Field of Research: **Environmental Fluid Mechanics with a focus on Oceanic-Atmospheric coupled processes***

ASTraL 2023: *Arabian Sea Transition Layer Project (2023,2024,2025)* 2022- present

- Participated in The ASTraL Pilot Cruise on Research Vessel Roger Revelle, June 2023
- Collected atmospheric and oceanic data to evaluate the atmospheric-oceanic boundary layer physics on the appearance, maturation and disappearing phases of Southeastern Arabian Sea Mini Warm Pool and its impact on Summer Monsoon onset.

FATIMA 2022: *Fog and Turbulence Interactions in the Marine Atmosphere* 2022-present

- Analyzed the Vertical Microstructure Profiler (VMP), Acoustic Doppler Current Profiler (ADCP), Visibility and meteorological data in Hibernia and Sable Island, Canada of the FATIMA July,2022 cruise, to understand the relationship between marine fog appearance and upper oceanic turbulence.

University of Peradeniya

Volunteer Graduate Research Assistant, Department of Geology Peradeniya, Sri Lanka
December 2021- August 2022

Advisor Name : Dr. Nadeesha H. Koralegedara and Prof. Rohana Chandrajith

The financial assistance by AHEAD/RA3/DOR/PDN/SCI/GEOLOGY #13

- Performed batch experiments to evaluate adsorption kinetics, isotherms, and thermodynamics for the removal of Methylene Blue cationic dye from Sri Lankan Red Earth to understand the economically sparsely used Red Earth's efficiency on Dye Removal process, leading to a conference publication

Undergraduate honors thesis research, Department of Geology

January 2020– June 2021

Advisor Name: Prof. H. A. H. Jayasena

Thesis Title: The dilemma of achieving SDG 6 targets under the Global Water Agenda: an analysis from the dry zone of Sri Lanka

- Assessed the level of progress of each SDG 6 targets for the dry zone localities based on water accessibility, water quality, water stress and water management categories and recommended solutions in accelerating the path towards 2030 for highly marginalized zones of the dry zone, stressing the importance of past indigenous water management systems in adapting to present conditions.
- Conducted independent research utilizing ARIMA forecasting tools, RStudio and GIS based satellite data, leading to a conference publication

CONFERENCE PROCEEDINGS

Gamage, D., Jayasoma, K., Rathnayake, I., Koralegedara, N.H., Chandrajith, R. (2022) *Efficient removal of Methylene Blue Dye using Sri Lankan Red Earth*. 38th Annual Technical Session. Geological Society of Sri Lanka, 25th February 2022 (Public Presentation)

Gamage, T. B. D. D., Chandrasena, M. G. P. N. and Jayasena, H. A. H. (2021) *Covid-19 implications on achieving SDG 6 targets in Sri Lanka under the Global Water Agenda*. Proceedings, Peradeniya University International Research Sessions (iPURSE): Vol23, 11-12th November 2021 (Public Presentation)

HONORS AND AWARDS

University award for academic excellence, University of Peradeniya, Sri Lanka 2021

P. W. Vitanage Memorial Scholarship, University of Peradeniya, Geological Society of Sri Lanka 2019

- Awarded to the student showing the best performance by obtaining the highest GPA for 100 and 200 series courses offered by the Department of Geology, University of Peradeniya

TEACHING EXPERIENCE

University of Notre Dame du Lac

Notre Dame, IN

Teaching Assistant, Department of Civil and Environmental Engineering and Earth Sciences

August 2022- present

- Planet Earth Laboratory CE 2110 *August 2023 - present*
 - Enhanced students' grasp of Earth Sciences by conducting collaborative lab sessions that bridged theory and practical observations, fostering discussions and knowledge exchange
- Hydraulics CE 40450 *January 2023- May 2023*
 - Assumed a key role in grading assignments and examinations
- Computational Methods in Engineering CE 30125 *August 2022-January 2023*
 - Assisted over 70 students through extra help sessions, ensuring a comprehensive understanding of course materials.
 - Delivered personalized one-on-one guidance tailoring explanations and strategies for students' specific problems.
 - Provided detailed feedback and constructive critiques on students' MATLAB implementations, offering guidance for optimizing code efficiency and accuracy in solving complex equations using finite difference methods.

University of Peradeniya

Teaching Assistant, Department of Geology

Peradeniya, Sri Lanka

September 2021- August 2022

- Instructed undergraduates through several Earth Science related coursework by conducting lectures, managing schedules, and conducting extra helping sessions on the following courses.
 - GEO 1021 Earth Processes Laboratory
 - GL 211 Optical Mineralogy
 - GL 212 Introductory Petrology
 - GL 215 Economic Geology
 - GL 216 Geomorphology
 - GL 218 Photogeology
 - GL 321 Hydrology
 - GL 323 Metamorphic Petrology
 - GL 324 Igneous Petrology
 - GL 325 Sedimentary Petrology
 - GL 327 Remote Sensing and GIS
 - GL 328 Structural Geology
 - GL 334 Field Geology
 - GL 219 Introductory Structural and field Geology
 - GL 217 Soil and Rock Mechanics
 - GL 442 Advanced Metamorphic Petrology
- Actively guided students through field camps, conducted regular weekend fieldwork sessions, fostering hands on learning experiences and practical skills development.

Self-initiated Physics Tutor

2020-2022

- Designed and implemented custom lesson plans, a range of tests and quizzes tailored to individual student needs and learning styles, resulting in improved comprehension and academic performance in Physics.

GIS Club, University of Peradeniya
Volunteer Teaching Assistant in GIS

Peradeniya, Sri Lanka
2019-2020

- Conducted educational webinars on Q-GIS software using the G-Guide Webinar Series for undergraduates and demonstrated high school students with Arc-GIS software assisting Post Graduate Institute of Science, to motivate and train students in GIS applications.

PROJECTS

Mahaweli Authority, Government of Sri Lanka – Department of Geology, University of Peradeniya

Kandy, Sri Lanka

Field camp: investigating Earth tremors around Victoria-Randenigala reservoirs February 2021

- Conducted an in-depth analysis to determine the causative factors behind the seismic events in the vicinity of the Victoria-Randenigala reservoirs by producing a comprehensive geological map, with a specific focus on engineering, structural and hydrological considerations in the post- seismic aftermath.

Irrigation Department, Government of Sri Lanka

Kandekatiya, Sri Lanka

Thalpitigala multipurpose reservoir project September 2019- October 2019

- Executed extensive engineering geological, hydrological, structural, and geophysical surveys within the prospective reservoir and tunnel trace area of the Thalpitigala Reservoir Project. These surveys included detailed field mapping crucial for environmental impact assessments.

University of Peradeniya

Peradeniya, Sri Lanka

Undergraduate Researcher: Mini Research Projects 2018- 2021

- Mini group projects and collegiate level reports based on field visits
 - Investigation of slope failure mitigation measures in schools around Kandy District 2019
Collaborated with the National Building Research Organization of Sri Lanka to investigate slope failure mitigation measures in Kandy District schools, resulting in the preparation of a university level project report
 - Field visit to dam sites of Mahaweli and Laxapana Complex 2019
A group project with a collegiate level report on understanding the different dam types, their hydraulics, power generation and their hazard monitoring and mitigation measures for Victoria, Randenigala, Rantambe, Kotmale and Castlereigh reservoirs and the Minipe anicut
 - Field visit to the South Western Highland Complex of Sri Lanka 2019
Investigated the field occurrences of calc silicate rocks predominantly rich in wollastonite, which provided valuable insights on the metamorphic fluid evolution. Additionally, actively contributed to the

preparation of petrological thin sections from hand specimens of wollastonite bearing rock samples for petrological investigations.

- Field visit to Samanalawewa Dam, Garnet beach and Ussangoda 2019
Compiled a comprehensive report on main dam structure, the spillways, tunnels, outlets, and power generation. This report also delved into the investigations on main causatives of the leakage, alongside a deep exploration on grouting methods and other mitigation measures. A description of serpentinite ultramafic deposits, and the economic feasibility of Garnet sand in the Southern part of Sri Lanka was additionally included to the report, underscoring its economic importance in the Southern Sri Lanka
- Ambuluwawa-Hemmathagama road mapping 2019
Recognized the shear indicators to interpret the stresses which represent the antiform and synform structures by conducting detailed structural mapping in the Eastern limb of Aranayake synform
- The geology of Hulu Ganga area and The geology of Kadugannawa area 2018
Carried out detailed road mapping along the primary railway track and the main road in Kadugannawa and along the river exposures in Hulu Ganga area as two mini group projects and discovered the main lithologies, the special structural occurrences, natural hazards as well as the economic importance of the study areas
- A litho-tectonic model for the formation of high grade terrain of Sri Lanka 2019
Completed a mini group project based on the Geology of Sri Lanka which entailed the preparation of a collegiate level abstract and the delivery of an informative presentation
 - Impact of Earthquakes and Seismology to General Public 2019
An individual project was carried out to understand the impact of Earthquakes to general public based on historical events and the importance of Earthquakes.
 - A review on morphologies and origin of the vein graphite of Sri Lanka 2019
Reviewed on the characterization morphologies of vein graphite of Sri Lanka by isotopic, scanning electron microscope, X-ray diffraction, Raman spectroscopy, Oxy-reactive and differential thermo-analysis methods and how these characterizations be utilized in identifying the origin of vein graphite

PROFESSIONAL EXPERIENCE

Geological Survey and Mines Bureau (GSMB)
Student Intern

Colombo, Sri Lanka
March 2020

- Expanded technical skills on mineral extraction and economic value evaluation by performing chemical analysis using internationally accepted standard techniques

Water Resources Board
Student Intern

Anuradhapura, Sri Lanka
January 2019 - February 2019

- Involved in the **Yan Oya Reservoir Project** by performing well water monitoring and conducted comprehensive water quality assessments within the communities residing in close proximity to the inundation areas
- Conducted geophysical surveys for groundwater evaluation in direct response to requests from local residents, demonstrating a proactive approach to addressing their concerns and needs: Gathered the experience from Water Resources Board into a collegiate level report

LEADERSHIP AND OUTREACH

University Geological Society, University of Peradeniya
Member

Sri Lanka
2017 - 2020

- Played a pivotal role in event coordination, logistics, proceedings and fostered camaraderie among undergraduates and alumni through outdoor activities
- Provided valuable educational support and materials to underprivileged high school students as part of the '*Akura Seminar and Assistantship Program*' with a particular focus on enhancing their proficiency in science and mathematics

GIS Club, University of Peradeniya
Secretary

Sri Lanka
2019- 2020

- Promoted knowledge sharing and skill development in GIS during the challenging period of COVID-19 pandemic through initiating *G-Guide Webinar series* for undergraduates
- Conducted and involved in organizing the engaging *G-Guide workshop*, focused on enhancing the practical skills of students in Q-GIS and ARC - GIS

Science Students' Association, University of Peradeniya

Sri Lanka
2019

- Managed the preparation and oversight of formal documentation required for high profile '*Geethanjalee*' musical program, attended by nearly 10,000 audience members
- This is a dual fund-raising initiative for both the '*Nenasara*' Student's scholarship which provides crucial support to underprivileged undergraduate students and the '*Sahodara Piyapath*' welfare program, dedicated to deserving underprivileged high school students

Hanthana Conservation Society, University of Peradeniya

Public awareness program on environmental conservation and proper waste disposal Sri Lanka
August 2018

PROFESSIONAL AFFILIATIONS

American Geophysical Union USA
Student Member *September 2023-present*

Graduate Society of Women Engineers, University of Notre Dame Notre Dame, IN
Member *October 2022-present*

PRESENTATIONS

University of Notre Dame du Lac Notre Dame, IN

- Fourier transformation using randomly sampled data *May 2023*
- Understanding the ocean turbulence near the Nova Scotia and Hibernia *March 2023*
- Arabian sea mini warm pool and its possible relation to the monsoon onset vortex *December 2022*

Faculty of Science, University of Peradeniya Sri Lanka

Science Undergraduate Research Symposium (SURS) *July 2021*

- The dilemma of achieving SDG 6 targets under the Global Water Agenda: an analysis from the dry zone of Sri Lanka

Seminar on special topics in Geology *June 2021*

- Introduction to Ophiolites

SKILLS AND INTERESTS

Computer skills : MATLAB, ArcGIS, QGIS, MS Office, XLSTAT, RStudio, C, HTML

Interests : Outdoor hiking, Nature, Art, Music, Theatre

REFERENCES

Available upon request