Yacob T. Tesfaldet

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Project Portfolio: https://www.datascienceportfol.io/yacobtt

Work Experience

Nov 2023	**Remote Sensing and GIS Analyst (Part-time)** *Urban Climate Resilient Infrastructure & Strategic Planning (UCRISP), Thailand* • Collect, process, and analyze remote sensing data such as satellite imagery, LiDAR, and aerial photography. • Conduct image classification, change detection, and spatial analysis to identify land cover changes, habitat mapping, and environmental trends. • Apply advanced remote sensing techniques to assess vegetation health, monitor deforestation, and detect flood hazards. • Create and maintain GIS databases, spatial layers, and geospatial models to support project requirements. • Perform spatial analysis using GIS software to assess environmental impacts, land use changes, and habitat suitability.
May 2022 – Aug. 2023	**Research Assistant (Remote Sensing and GIS Analyst)** *Department of Geography and Urban Sustainability, United Arab Emirates University* • Expertise in GIS, Geodemographics, and Remote Sensing Analysis • Proficient in environmental data analysis and machine learning techniques • Conducted fieldwork for environmental and disaster assessments • Skilled in statistical analysis, data visualization, and modeling • Collaborated with principal investigators to coordinate qualitative research • Prepared and organized materials for reports, presentations, and journal publications • Strong background in data analysis, research, and report submission
Sept. 2019 – June 2022	**Research Assistant (Environmental Science, Spatial Analysis, Data Science)** *International Program in Hazardous Substance and Environmental Management, Chulalongkorn University* • Environmental Monitoring and Assessment Specialist. • Proficient in environmental data analysis, visualization, modeling, and GIS. • Conducted fieldwork for environmental monitoring and assessment. • Expertise in digital image processing and raster analysis. • Specialization in spatial analysis for environmental applications • Conducted hazardous waste management studies. • Skilled in analyzing research data and creating representative graphs and charts. • Prepared detailed scientific reports and presentations based on findings. • Successfully conducted surveys to gather perceptions and opinions on specific issues of concern.
Sept. 2018 – May 2019	**Research Assistant (Environmental Analysis)** *Faculty of Technology and Environment, Prince Songkla University, Thailand* • Groundwater Potential Assessment Specialist. • Experienced in geophysical fieldwork design and implementation. • Conducted fieldwork on groundwater potential assessment and investigations, including seawater intrusion, heavy metal contamination, and landslide rupture zones. • Maintained and calibrated a variety of laboratory and field equipment. • Proficient in operating the SuperSting Wi-Fi R2 for 1D, 2D, and 3D surveys with various electrode configurations. • Successfully conducted surveys to collect perceptions and opinions on specific issues of concern. • Gathered, reviewed, and summarized literature from scientific journals such as WoS, Scopus, and PubMed.
Sept. 2013 – Aug. 2017	**Instructor (Course and Lab)** *Department of Earth Sciences, Eritrea Institute of Technology, Asmara, Eritrea* • University instructor with extensive experience. • Strong organizational and administrative skills. • Created lesson materials, visuals, and digital presentations. • Directed students in performing and completing assigned tasks. • Completed administrative and research duties as required by professors.

- Organized various class presentations and developed new course materials.
- Mentored students through office hours and one-on-one communication.
- Checked assignments, proctored tests, and graded according to university standards.
- Conducted small group teaching sessions focused on specific coursework segments.
- Supervised and participated in practical laboratory work and geological field trip activities.

Education

July 2024	**Doctor of Philosophy in Hazardous Substance and Environmental Management** International Program in Hazardous Substance and Environmental Management, Graduate School, Chulalongkorn University Thesis topic: Analyzing the Spatiotemporal Distribution of Particulate Matter and its Impact on Hospital Admissions in Bangkok: Insights for Policy and Action.
July 2019	**Master of Science in Earth System Science (Research-based)** Faculty of Technology and Environment, Prince of Songkla University, Phuket, Thailand Thesis topic: Groundwater recharge estimation in Thepkasattri Watershed Phuket, Thailand.
June 2014	**Bachelor of Science in Geology (Distinction, CGPA 3.45, June 2014)** Department of Earth Sciences, Eritrea Institute of Technology, Asmara, Eritrea Thesis topic: Geological and geophysical field mapping of Adi-Keshi area, Zoba Maekel, Eritrea.

Team Project and Grant applications

April 2024	**Using Remote Sensing and GIS for Effective Ethiopian Wolf Habitat Monitoring in Bale Mountain National Park (Satellite for Biodiversity Award)** **Funder:** Connected Conservation Foundation (CCF) & Airbus Foundation (AF) https://connectedconservation.foundation/projects/conserving-critically-endangered-ethiopian-wolves/ **Role:** Principal Investigator
May 2023	**Early detection of date palm stress using remote sensing and machine learning (Submitted)** Department of Geography and Urban Sustainability, UAE university.
May 2022 – Aug. 2023	**Role of Groceries in Disaster/ Pandemic Management: Geographic Information System Application** Department of Geography and Urban Sustainability, UAE university.
Jan. 2021 – Dec. 2022	**COVID-19 face mask in the environment: status and policy implications** Team project Hazardous Substance and Environmental Management, Chulalongkorn University
Oct. 2020 – Feb. 2021	**Action plan addressing marine litter in the Red Sea** Team project, Dec. 2020 – Jan. 2021 Massive Open Online Course (MOOC) on Marine Litter
Feb. 2015 – Mar. 2015	**Field Work Assistant for Geodetic Survey** Research Project in Collaborating between Eritrea Institute of Technology and KAUST. Deployment of GPS on a station, periodic receiver checking including geodetic data collection at every forty-eight hours.

Technical Skills

Skills: GeoAI | Cartography | Environmental monitoring | Geodatabase management | Machine learning | Remote Sensing & GIS | Spatial statistics |
Software's: Arc Map (ESRI Arc GIS Desktop and Pro) | QGIS | Geodatabase | GeoAI | Surfer | ENVI | ERDAS | SigmaPlot | SPSS | Res2dinv | EarthImager 1D, 2D, 3D | SWAT+ | eCognition |
Programming: Python (Advanced) | MATLAB (Intermediate) | Java (Intermediate) | SQL | PostGIS | Geopandas | GDAL | PyGIS |
Cloud Computing: Google Earth Engine (GEE) | Google Collab |

Teaching Experience

Instructor: Geographic Information System | Photogrammetry | General Geology
Lab Instructor: Crystallography | GIS | Geoscience software's | Hydrogeology
Field Work Supervision: Field Mapping and Surveying | Data Collection & Sampling

Publications

1. M. M. Yagoub, Tareefa AlSumaiti, Naeema Alhosani, Marwan Elmubarak, Othmane Kortbi, **Yacob T, Tesfaldet**, Mohamed Al Namani, Sarah R Aldhanhani (2024). "Potential of using groceries in disasters/pandemics management: case of Al Ain City, UAE". Cogent Business & Management. https://doi.org/10.1080/23311975.2024.2307639

2. M. M. Yagoub, **Yacob T. Tesfaldet**, Tareefa AlSumaiti, Naeema Al Hosani, Marwan G. Elmubarak. (2024). "Estimating population density using open-access satellite images and geographic information system: Case of Al Ain city, UAE". Remote Sensing Applications: Society and Environment. https://doi.org/10.1016/j.rsase.2023.101122

3. Nji T. Ndeh and **Yacob T. Tesfaldet**, Oluseye Oludoye. (2023) "Bibliometric analysis of the incidence of non-Covid respiratory disease Under NPI conditions during the pandemic". Journal of Applied Life Sciences and Environment. https://doi.org/10.46909/alse-562094

4. M. M. Yagoub, Tareefa AlSumaiti, **Yacob T. Tesfaldet**, Khaled AlArfati, Maythaa Alraeesi, Mariam Eid Alketbi. (2023). "Integration of Analytic Hierarchy Process (AHP) and Remote Sensing to Assess Threats to Preservation of the Oases: Case of Al Ain, UAE". Land. https://doi.org/10.3390/land12071269.

5. **Yacob T. Tesfaldet**, Penradee Chanpiwat. (2023). "The effects of meteorology and biomass burning on urban air quality: The case of Bangkok". Urban Climate. https://doi.org/10.1016/j.uclim.2023.101441

6. Anna Diem, **Yacob T. Tesfaldet**, Taly Hocherman, Vineeta Hoon, Karin Zijlemans. (2023). "Marine litter in the Red Sea: Status and policy implications". Marine Pollution Bulletin. https://doi.org/10.1016/j.marpolbul.2022.114495

7. M. M. Yagoub, **Yacob T. Tesfaldet**, Marwan G. Elmubarak, Naeema Al Hosani. (2022). "Extraction of Urban Quality of Life Indicators Using Remote Sensing and Machine Learning: The Case of Al Ain City, United Arab Emirates (UAE)". ISPRS International Journal of Geo-information. https://doi.org/10.3390/ijgi11090458

8. **Yacob T. Tesfaldet**, Nji T. Ndeh. (2022). "Public face masks wearing during the COVID-19 pandemic: A comprehensive analysis is needed for potential implications". Journal of Hazardous Materials Advances. https://doi.org/10.1016/j.hazadv.2022.100125

9. Nji T. Ndeh and **Yacob T. Tesfaldet**, Jariya Budnard, Pavadee Chuaicharoen. (2022) "The secondary outcome of public health measures amidst the COVID-19 pandemic in the spread of other respiratory infectious diseases in Thailand". Travel Medicine and Infectious Disease. https://doi.org/10.1016/j.tmaid.2022.102348

10. **Yacob T. Tesfaldet**, Nji T. Ndeh. (2022). "Assessing face masks in the environment by means of the DPSIR framework". Science of the Total Environment. https://doi.org/10.1016/j.scitotenv.2021.152859

11. **Yacob T. Tesfaldet**, Nji T. Ndeh, Jariya Budnard, Patamavadee Treeson. (2021). "Assessing face mask littering in urban environments and policy implications: The case of Bangkok". Science of the Total Environment. https://doi.org/10.1016/j.scitotenv.2021.150952

12. Diem Anna, Zijlemans Karin, Hocherman Taly, Ma Tianxiao, Hoon Vineeta, and **Yacob T. Tesfaldet**. (2021). "Action Plan Addressing Marine Litter in the Red Sea" MOOC, UN Environment.

13. **Yacob T. Tesfaldet** and Nji T. Ndeh. (2020). "Chulalongkorn University Precautionary Measures Amid COVID-19 Outbreak." Journal of the Infectious Disease Association of Thailand 3.37: 1-11. https://www.idthai.org/2015/journal/index.php/journal/articles/816/fulltext

14. **Yacob T. Tesfaldet**, Avirut Puttiwongrak, and Tanwa Arpornthip. (2020). "Spatial and temporal variation of groundwater recharge in shallow aquifer in the Thepkasattri of Phuket, Thailand." Journal of Groundwater Science and Engineering 8.1: 10-19. http://dx.doi.org/10.19637/j.cnki.2305-7068.2020.01002

15. **Yacob T. Tesfaldet** and Avirut Puttiwongrak. (2019). "Seasonal Groundwater Recharge Characterization Using Time-Lapse Electrical Resistivity Tomography in the Thepkasattri Watershed on Phuket Island, Thailand." Hydrology 6.2: 36. https://doi.org/10.3390/hydrology6020036

For a complete list of my publications, membership, and peer review experience please refer to my ORCID (QR code) and Google Scholar (https://scholar.google.com/citations?user=HSXZDDkAAAAJ&hl=en).

Conference/Forum

May 9-10, 2024	**Yacob T. Tesfaldet** and Penradee Chanpiwat 13th International Conference on Environmental Engineering, Science and Management at Pullman Khon Kaen Raja Orchid, Khon Kaen, Thailand "Air pollution and hospital admissions for cardiopulmonary diseases using AirQ+ in Bangkok, Thailand".
Aug. 19 to Sept., 2023	European Forum Alpbach 2023 (EFA23), Alpbach, Austria. Attended seminar on Energy transition, climate justice, and diffusing carbon bomb. In addition, I have attended a research presentation on waste management and the use of AI for biodiversity conservation in national parks.
January 17-19, 2023	Emerging Pollutants: Protecting Water Quality for the Health of People and the Environment. UNESCO-IWRA Online Conference: Participant. https://iwra.org/member/index.php?mainpage=&page=286&congressyear=2023&eventid=11
November 17, 2022	Anna Diem, **Yacob T. Tesfaldet**, Taly Hocherman, Vineeta Hoon, Karin Zijlemans. (2022). Marine litter in the Red Sea: Status and policy implications. (2022, November 17). Marine litter in the Red Sea: Status and policy implications. MICRO 2022, Online Atlas Edition: Plastic Pollution from MACRO to nano, online. https://doi.org/10.5281/zenodo.7216969.

Featured works and Blogs

1. 2D Time-Lapse Survey: Seasonal Groundwater Recharge Characterization Using Time-Lapse ERI (Advanced Geoscience Inc. Austin, Texas) https://www.agiusa.com/2d-time-lapse-survey

2. How Climate Change is Contributing to the East African Desert Locust Crisis. https://medium.com/@pamojaearthsolutions/how-climate-change-is-contributing-to-the-east-african-desert-locust-crisis-a3491e81885f

3. Balancing Conservation and Human Needs in the Face of Water-Related Human-Elephant Conflict. https://medium.com/@pamojaearthsolutions/balancing-conservation-and-human-needs-in-the-face-of-water-related-human-elephant-conflict-8c733c00c508

Peer review experience

1. Environmental Science and Pollution Research

2. Biomedical and Environmental Sciences

3. Hydrological Processes International Journal of Geophysics

4. Marine Geo-resources and Geotechnology

5. Marine Pollution Bulletin

6. Journal of Environmental Chemical Engineering

Awards

1. Scholarship for Participation at the European Forum Alpbach 2023, Forum Alpbach Foundation, Austria.
2. Clean and Green Campus Project. Certificate of Participation from Faculty of Technology and Environment, Prince of Songkla University, September 2019.
3. First Prize in the Research Poster Competition. Prince of Songkla University Research and Poster Day April 2018.
4. Outstanding Presenter in ESSAND Journal Club. Faculty of Technology and Environment, PSU, August 2017.
5. Thailand International Cooperation Agency (TICA) scholarship for study MSc degree, August 2017 – May 2019.
6. Bachelor of Science Graduate with Distinction, College of Science, Eritrea Institute of Technology, June 2014.

Professional Membership

1. International Water Resources Association (IWRA)
2. International Society for Photogrammetry and Remote Sensing (ISPRS): Hannover, Niedersachsen, DE

Certificates and Courses

Remote Sensing and GIS	1. SAR-400: Synthetic Aperture Radar: Foundations (December 31, 2023), edX, offered by AlaskaX. 2. Advanced training on assessing the impacts of fires on watershed health (July 06-13, 2023), NASA's Applied Remote Sensing Training Program. 3. Advanced training on monitoring water quality of inland lakes using remote sensing (July 18-25, 2023), NASA's Applied Remote Sensing Training Program. 4. Tools for analyzing NASA air quality model output (March 01, 2022), NASA's Applied Remote Sensing Training Program. 5. Introduction to NASA resources for climate change applications (Sept 29 & Oct 06, 2021), NASA's Applied Remote Sensing Training Program. 6. Introduction and access to global air quality forecasting data and tools (Sept 23, 28, & 30, 2021), NASA's Applied Remote Sensing Training Program. 7. Introduction to population grids and their integration with remote sensing data for sustainable developments and disaster management (March 30 & April 6, 2021), NASA's Applied Remote Sensing Training Program. 8. Use of solar induced fluorescence and LIDAR to assess vegetation change and vulnerability (March 16 to March 25, 2021), NASA's Applied Remote Sensing Training Program. 9. OpenStreetMap for GIS analysis in Water Resources Engineering, (February 5, 2021), eMWRE Online Tutorial. 10. Satellite Remote Sensing for Urban Heat Islands (November 10th, 14th, & 24th, 2020), NASA's Applied Remote Sensing Training Program. 11. Using Earth Observation to Monitor Water Budgets for River Basin Management II (July 21 to August 4, 2020), NASA's Applied Remote Sensing Training Program. 12. Understanding Phenology with Remote Sensing (June 30 to July 14, 2020), NASA's Applied Remote Sensing Training Program. 13. Satellite Remote Sensing for Agricultural Applications (April 14, 21, 28, & May 5, 2020) NASA's Applied Remote Sensing Training Program. 14. An Inside Look at how NASA Measures Air Pollution, (May 26 & 28, 2020) NASA's Applied Remote Sensing Training Program.

Data Science	1. Intermediate SQL queries (November 2022), Datacamp
	2. AI for everyone (September 2022), DeepLearning.AI, Coursera.
	3. Scientific computing with Python (Certified) (June 2022), freeCodeCamp.
	4. Build a data science web app with Streamlit and Python (April 2, 2022), Coursera Project Network.
	5. Linear regression with NumPy and Python (March 3, 2022), Coursera Project Network.
	6. Introduction to data science in Python (Intermediate) January 17, 2022, University of Michigan, Coursera.
	7. Python for data science and machine learning bootcamp (August 11, 2021), udemy
	8. Supervised learning with scikit-learn (April 30, 2021), Datacamp
	9. Statistical thinking in Python (Part 1) (April 25, 2021), Datacamp
	10. Data manipulation with pandas (April 28, 2021), Datacamp
	11. Data science for everyone (May 4, 2021), Datacamp
	12. Intermediate python (April 24, 2021), Datacamp
	13. Introduction to data visualization with matplotlib (April 26, 2021), Datacamp
	14. Introduction to python (April 23,2021), Datacamp
	15. Machine learning for everyone (May 2, 2021), Datacamp
	16. Machine learning for all, (January 7, 2021), University of London, Coursera.
	10. Understanding Univariate & Bivariate Analyses and Looking at Univariate & Multivariable regression Analyses, (November 2019), editage.

References

1. Prof. Mohammed Yagoub Mohammed
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3. Dr. Elias W. Gabisa
   Environmental Engineering
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