

Dr Heshani Edirisinghe – Data Scientist

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Summary

Versatile Data Scientist with a background in ecology and bioinformatics, showcasing expertise in statistical analysis, modeling, and machine learning using R, and Python. Proven ability in project management, stakeholder engagement, and development of web applications. Adept at translating complex statistical findings into actionable insights for informed decision-making, with transferable skills to achieve excellence in data analytics.

Skills

Statistical Analysis and Modeling: Experimental Design, Exploratory data analysis (EDA), Statistical modeling (regression, GLMM, Monte-Carlo Simulations) using R (dplyr, shinny, ggplot2, tm, tidyr, cluster, rgl, lme4, alphashape3d) and Python (NumPy, pandas, matplotlib, seaborn, BeautifulSoup2), machine learning with Python (scikit-learn, TensorFlow), MATLAB.

Programming and Development: Web app development with R Shiny, database management with SQLite, MySQL.

GIS: Geospatial analysis using R, Python and ArcGIS

Consultation and stakeholder engagement: Effective communication and collaboration

Project management and team leadership: Agile and Waterfall methodologies, Short/long-term planning, project delivery, team leadership, and coordination.

Experience

Ecologist/ GIS Specialist | Wildland Consultants Pvt Ltd., New Zealand | September 2022 – To Present

- Developed a web application in R Shiny for extracting GPS location information from images.
- Leading the development of a classification application in Python using TensorFlow to identify long-tailed bat records.
- Designed and implemented databases for geospatial data, performed geospatial modeling using Python and ArcGIS.

Lecturer in Statistics | Massey University, New Zealand | March 2021 – July 2022

- Conducted courses in Applied Statistics and Statistics for Business, emphasizing experimental design and analytical skills (hypothesis testing, linear models, time series analysis and control chart analysis) using Microsoft Excel and R.
- Used R to model the potential distribution of invasive species using citizen science data (iNaturalistNZ).

Data Scientist | School of Build Environment, Massey University | August 2021 – December 2021

- Spearheaded the development of a predictive modeling tool for estimating waste generated by residential housing construction projects in New Zealand which will be used to promote design features in residential dwellings to reduce waste generation in the construction industry.
- Presented statistical findings and insights for both internal and external stakeholders using R Shiny and PowerBI.

Data Analyst - Research Collaborations | Massey University, New Zealand | August 2019 – August 2022

- Advised on statistical analysis for a PhD student developing a conceptual cost estimation model for pre-design stages of New Zealand Road Projects.
- Applied Multiple Linear Regression, Artificial Neural Networks, and Monte Carlo simulation to create a novel model, showing potential to improve traditional conceptual estimating methods.
- Advised on qualitative data collection for surveys focusing on privacy, human rights, and ethical considerations.
- Contributed to air quality data analysis, providing statistical interpretation for EDA and regression models in R.
- Analysed and interpreted random forest models and cluster analysis in R to identify trends in dolphin whistles.

Project Manager/ E-learning Consultant | Headstart Pvt Ltd, Sri Lanka | December 2015 – August 2016

- Introduced a planning tool for the content development team, enhancing the efficiency of the content development teams by 10%.
- Introduced a basis for effort and output calculation, contributing to informed decision-making.

Business Analyst | Headstart Pvt Ltd, Sri Lanka | August 2014 – December 2015

- Managed databases using SQL, demonstrating proficiency in database administration.
- Conducted train-the-trainer sessions for clients, imparting expertise on learning management systems.

Education

PhD in Zoology | Massey University, New Zealand | November 2021

Project: **Biology and behaviour of New Zealand ladybirds: Insights into the establishment success of introduced species.** Developed advanced statistical models (including GLMM) and methods to compare the level of variation in behaviour, morphology and physiology between native and introduced ladybirds in New Zealand using R.

Bachelor of Science (Bioinformatics) | University of Colombo, Sri Lanka | March 2014

Modules: Programming, Software Engineering, Biostatistics, Computer Graphics and Image Processing, Neural Computing, Database Systems, Computer Pattern Recognition

Honour's thesis: **Predicting the relationship between body size and habitat type of tiger beetles (Coleoptera, Cicindelidae) using artificial neural networks**

Certifications

BCG - Data Science Job Simulation by Forage - 2023

- Applied skills in Business Understanding, Hypothesis Framing, EDA, and Feature Engineering using Python.
- Preparing abstract presentations to effectively communicate model findings and recommendations to clients.

The Data Science Course: Complete Data Science Bootcamp 2023 (Udemy Course)

- Comprehensive program covering Statistical Analysis, Python programming (NumPy, pandas, matplotlib, and Seaborn), Tableau, machine learning with stats models and scikit-learn and deep learning with TensorFlow.

Associate Fellow of the Advance-HE

- Awarded by Advanced HE-UK, showcasing expertise in teaching practices in tertiary education.

Advanced Diploma in Management Accounting (2015)

- Awarded by CIMA-UK, showcasing expertise in advanced management accounting principles and practices.

PMP Exam Preparation (Ongoing)

- Pursuing Project Management Professional (PMP) certification by PMI, demonstrating commitment to mastering project management methodologies and best practices.
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Invited talks – National and International Conferences

Edirisinghe, H.M., Wignall, A., Leschen, R. & Dale, J. 2019. Colour variation in native and introduced ladybirds in New Zealand (Coleoptera: Coccinellidae). 11th International symposium of Integrative Zoology, Massey University, Auckland, December 2-7, 2019.

Edirisinghe, H.M., Wignall, A., Leschen, R. & Dale, J. 2017. Phenotypic variation in ladybirds (Coleoptera: Coccinellidae). Evolution and Behaviour symposium at the 66th New Zealand Entomological Society Conference, Wellington, New Zealand, April 19-21, 2017. Symposium organiser: G. Holwell.

Community Outreach Activities

- Conducted RStudio workshop 2021: Leading practice sessions in breakout rooms at Goodwill community of practice session
- Invited to publish an article for 'Curious kids' series on The Conversation, New Zealand - <https://theconversation.com/curious-kids-why-dont-ladybirds-have-tails-117749>
- Led social media site of the School of Natural Sciences PhD student community
- Member of the student organizing committee at SNCS Postgraduate Students' Conference 2017-2020