

Dr Heshani Edirisinghe, PhD

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Experience

SEPTEMBER 2022 – TO PRESENT

Ecologist/ GIS Specialist, Wildland Consultants Pvt Ltd., Auckland, New Zealand

- 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 systems and databases for geospatial data, performed geospatial modeling using Python and ArcGIS.
- Provide assistance with ecological impact assessments, proposal preparation, project scoping and client interaction

MARCH 2021 – JULY 2022

Lecturer in Statistics, School of Mathematical & Computational Sciences, Massey University, New Zealand

- 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.
- Principal Investigator for the project predicting the invasion of *Harmonia axyridis* using citizen science data in R.
- Conducted RStudio workshop: Leading practice sessions in breakout rooms at Goodwill community of practice session

August 2021 – December 2021

Data Scientist/ Research Assistant, School of Build Environment, Massey University, New Zealand

- Spearheaded the development of a predictive modeling tool for estimating waste generated by residential housing construction projects in New Zealand for the Auckland Council, New Zealand.
- Collaborated with internal stakeholders to identify and gather analytical requirements, contributing to the wider applicability of the tool and aligning with project needs.
- Practiced sound programming habits, including version control and documentation, in a fast-paced and deadline-driven atmosphere.
- Presented complex statistical findings and insights orally and in written reports, ensuring accessibility for both internal and external stakeholders using diverse visualisation techniques including R Shiny and PowerBI.

August 2019 – August 2022

Data Analyst - Research Collaborations, Massey University, New Zealand

- 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 and analysis methods for questionnaire surveys in the "Improvement of Building Regulations for Next-Generation Smart Housing," focusing on privacy, human rights, and ethical considerations.
- Contributed to air quality assessment data analysis, providing statistical interpretation for exploratory data analysis and statistical models (regression analysis).
- Analyzed and interpreted statistical models (random forest models) to identify trends in dolphin whistles, focusing on features such as frequency and inflection points.

December 2015 – August 2016

Project Manager/ E-learning Consultant, Headstart Pvt Ltd, Sri Lanka

- Spearheaded short and long-term planning initiatives for monthly deliveries and overall project deliveries.
- Introduced a planning tool for the content development team, significantly enhancing the efficiency of the content development teams.
- Participated in a committee focused on enhancing the quality and standards of e-learning content.

- Led team restructuring efforts, streamlining content development processes and revamping the learning management system (Moodle based).
- Introduced a basis for effort and output calculation, widely utilized for financial and management purposes, contributing to informed decision-making.
- Conducted daily stand-ups, sprint planning, review meetings, retrospectives, and sprint demonstrations/playback sessions.

August 2014 – December 2015

Business Analyst, Headstart Pvt Ltd, Sri Lanka

- Led efforts to collect and assess data requirements, collaborating closely with stakeholders to ensure a comprehensive understanding of business needs (Moodle/ Canvas).
- Managed databases using SQL, demonstrating proficiency in database administration and contributing to efficient data management practices.
- Collaborated with cross-functional teams to create conceptual prototypes and mock-ups, ensuring alignment with client expectations and project specifications.
- Conducted train-the-trainer sessions for clients, imparting expertise on learning management systems.
- Engaged in consultative discussions with product stakeholders, actively contributing to the creation and maintenance of a product roadmap.

Education

NOVEMBER 2021

PhD in Zoology/Massey University, New Zealand

Project: Biology and behaviour of New Zealand ladybirds: Insights into the establishment success of introduced species

- Developed advanced statistical models (including generalized linear mixed models) and methods to compare the level of variation in behaviour, morphology and physiology between native and introduced ladybirds in New Zealand using R.

Supervisors: Dr A. Wignall, Dr R. Leschen and Prof J. Dale

Scholarship & grant successes: Massey University Doctoral Scholarship, Massey University Conference Presentation Grant, Hutton Fund, - Royal Society Te Apārangi, 21st Anniversary Award and K.J Fox - Entomological Society New Zealand

MARCH 2014

Bachelor of Science (Bioinformatics)/University of Colombo, Sri Lanka

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

Supervisors: Dr C. Dangalle and Dr K. Pulasinghe

Scholarship: Mahapola Scholarship - Mahapola Higher Education Scholarship Trust Fund, Sri Lanka

Skills

Statistical Analysis and Modeling: EDA, Statistical modeling (regression models, GLMM) using R (dplyr, shinny, ggplot, tm, tidyr) 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.

Certifications

BCG - Data Science Job Simulation by Forage - 2023

- Applied skills in Business Understanding, Hypothesis Framing, Exploratory Data Analysis, 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 with NumPy, pandas, matplotlib, and Seaborn.
- Advanced statistical analysis, Tableau, Machine Learning with stats models and scikit-learn.
- In-depth exploration of Deep Learning with TensorFlow.

Associate Fellow of the Advance-HE

- Awarded by Advanced HE-UK, showcasing expertise 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

- Actively promoting iNaturalist NZ ladybird watch project to create awareness on ladybirds in New Zealand.
 - 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>
 - Leading activities at Ecology and Zoology hub at Massey University, Auckland Open Day
 - Leading 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
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References

Prof Dianne Brunton (Professor of Behavioural Ecology) - Massey University, New Zealand | D.H.Brunton@massey.ac.nz

Dr Julio Pereira (Senior Tutor in Statistics) - Massey University, New Zealand | J.Pereira@massey.ac.nz

Dr Anne Wignall (Senior Lecturer in Zoology and Ecology) - Massey University, New Zealand | A.E.Wignall@massey.ac.nz