

Janith Wanniarachchi

R / SHINY DEVELOPER (APPSILON)
EXPLORING INTERSECTIONS OF DATA VISUALIZATION AND STATISTICAL TECHNIQUES

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EDUCATION

2023 – Now	PhD in Econometrics and Business Statistics Research areas: Visualization, Explainable AI, Extreme climate events	MONASH UNIVERSITY, AUSTRALIA
2022	IELTS International English Language Testing System Overall Score: 8.0 (Listening: 9.0, Reading: 9.0, Writing: 7.0, Speaking: 7.0) As of August 10, 2022	BRITISH COUNCIL
2017 – 2022	BSc. (Honours) in Statistics Major: Statistics Minor: Computer Science & Mathematics First Class Statistics GPA : 3.88, Overall GPA: 3.82	UNIVERSITY OF SRI JAYEWARDENEPURA
2013	Diploma Web Engineering	ESOFT METRO CAMPUS
2003 – 2016	Grade 1 to Advanced Level Education Subjects studied during Advanced Level: Mathematics, Physics, and Chemistry	ROYAL COLLEGE, COLOMBO

RESEARCH AND PUBLICATIONS

2022	scatterR: Generating instance space based on scagnostics DOI: https://doi.org/10.48550/arXiv.2209.06682	WANNIARACHCHI, J.C., TALAGALA, T.S.
2017	Intelligent System to Verify the Effectiveness of Proposed Teacher Transfers Incorporating Human Factors Karunanayake, V.J., Wanniarachchi J.C., Karunanayake, P.N.K., Rajapaksha, U.U.S. DOI: 10.1109/ICARC54489.2022.9754089	
2022	scatterR: Generating instance space based on scagnostics Presented scatterR in the Synthetic Data and Text Analysis session in useR! 2022 as a diversity scholarship winner and session chair for the Inference Methods session	USER! 2022 CONFERENCE
2023	Visualising Counterfactual Explanations of Machine Learning Models Presented at the 12th conference of the Asian Regional Section of the International Association for Statistical Computing (IASC-ARS) held at the Macquarie University, Sydney, under the title Seeing the Smoke Before the Fire: Visualising Spatiotemporal Indicators of Bushfires through Counterfactual Explanations of Machine Learning Models	IASC CONFERENCE

GRANTS

2022	useR! 2022 diversity scholarship Received the diversity scholarship offered by the organizers of the useR! 2022 organizers for the contributions made to the R Community by sharing knowledge and creating platforms for diverse groups	UNIVERSITY OF SRI JAYEWARDENEPURA
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R SOFTWARE PACKAGES

anchorsRevisited

[GITHUB](#)

anchorsRevisited is a package under development to explain how Anchors, an Explainable AI method, is developed in simple easy to understand methods.

DSjobtracker

[CRAN](#), [GITHUB](#)

DSJobtracker is a data package containing the job requirements for Data science jobs all around the world. The project has been continuously running since 2020 and has collected over 800 observations (as of 2022). The dataset was collected manually and cleaned through R in a reproducible manner to be published as a data package on CRAN with over 1000+ downloads in total. (as of 2022)

scatteR

[CRAN](#), [GITHUB](#)

scatteR is a novel data generating method that is based on scagnostics. Scagnostics are a graphical exploratory tool that is capable of quantifying the features of scatterplot through nine measurements that are calculated using three geometrical graphs. scatteR acts as an inverse scagnostics method by iteratively arranging points on a unit 2 dimensional space. The points are placed to minimize the distance between the existing and expected scagnostic measurements through simulated annealing as an optimization method.

nic

[CRAN](#), [GITHUB](#)

Nature Inspired Color package contains color palettes based on the flora and fauna species of Sri Lanka.

tsdataleaks

[GITHUB](#)

tsdataleaks is concerned with capturing the data leaks between time series in multivariate time series.

WORK EXPERIENCE

Feb 2024 - July 2024	Teaching Associate	MONASH UNIVERSITY
	Conducted tutorials for ETC5512 (Wild caught data) on data collection and wrangling for tabular and geospatial data	
Aug 2023 - Nov 2023	Teaching Associate	MONASH UNIVERSITY
	Conducted tutorials for ETC5523 (Communicating with data) on R Shiny development, R packages and storytelling through data visualization	
Oct 2022 - Nov 2023	R/Shiny Developer	APPSILON
	Developing Shiny dashboards and providing software engineering support in R package development for clients in the life sciences industry	
Nov 2021 - Aug 2022	Contractor Consultant	LABML.AI
	Providing analytics on online user segments and feature usage	
Nov 2020 - Oct 2021	Trainee Data Analyst	TRABEYA
	<ul style="list-style-type: none"> Developed the deduplication component of automated data cleaning solution. Developed a session based recommendation component for a recommendation platform Worked on a backend server providing real time recommendations through a microservices architecture 	
Feb 2021 - May 2021	Consultant Data Analyst	CREATIVEHUB
	Constructed a framework for testing hypothesis on the attributes of Facebook Ad campaigns and provided dashboards visualizing the success of ad campaigns	
Jan 2019 - Jun 2019	Contractor Consultant	INTELLIMORPH
	Provided Consultation and developed systems to detect anomalies in robotic process automation and a computer vision solution to automate a robotic hand to read credit card scanners.	

- Nov 2017 - Apr 2018 Freelance Graphic Designer MORPHEUS DIGITAL SERVICES
Designed the logo and branding material for a Digital Services company and handled monthly social media content creation for two clients.
- Sep 2017 - Nov 2017 Graphic Designer OCTUPUSBI FORMERLY AYRA ANALYTICS
Worked with a digital marketing team on creating marketing material for an data analytics company based in Australia providing analytical insights for schools in Australia.

ACHIEVEMENTS

- Won [second place](#) globally at the United Nations Datathon 2023 and First place from the Oceania, Australia and New Zealand region
 - The UN Datathon was a team-based three day datathon focused on developing solutions that align with the Sustainable Development Goals. In this competition, I worked in a team of five to create a web app to identify the best location to construct solar farms to meet the energy needs of those lacking sources of energy.
- Received the Outstanding Young Researcher / Student Contributed Oral Presentation Award at the 12th conference of the Asian Regional Section of the International Association for Statistical Computing
 - Presented my work on Anchors and applications to bushfires in the talk [Seeing the Smoke Before the Fire: Visualising Spatiotemporal Indicators of Bushfires through Counterfactual Explanations of Machine Learning Models](#)
- Received the Physical Science award in Statistics for the year 2022 by Sri Lanka Association for the Advancement of Science
 - Sri Lanka Association for the Advancement of Science (SLAAS) is the premier scientific body in the country. This award is given annually to the best BSc. Statistics (Hons.) degree research. After an extended abstract submission and a viva presentation, I was given this awarded at the 78th inaugural ceremony on the 11th of December 2022
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- Nominated for the Most Venerable Sri Sumangala Gold Medal in the 48th Convocation of University of Sri Jayawardenepura, Sri Lanka
 - The Most Venerable Sri Sumangala Gold medal is awarded to the student who has shown the highest level of excellence in both academic and extra-curricular performance among the students who have secured the Highest Grade Point Average (GPA) at the Bachelor of Science Degree Examination. I was nominated as one of the eligible applicants.
- Presented my thesis as one of the Top Ten Finalist at [Octave Advanced Analytics Symposium](#) 2022.
 - The Octave Advanced Analytics Symposium, organized a research competition where undergraduates and postgraduates submitted the abstract of their thesis and the finalists recieved the opportunity to showcase their thesis to a panel of judges. Secured the position of top 10 finalist in the competition based on the abstract of my thesis.
- 1st Runner up, hackStat 2.0 2019 organised by Stat Circle, University of Colombo.

- After a preliminary Kaggle competition, the final competition was centered around predicting customer churn in the Insurance field
- 1st Runner up, Datathon of [SLIIT](#) (Sri Lanka Institute of Information Technology) Codefest 2019.
 - After passing a written test, 24GB of data containing a set of time series of product stock availability was given to predict the future stock availability
- Finalist at Data Storm 2.0 2020 organised by Rotaract Club of University of Moratuwa and Faculty of Science, University of Colombo powered by Octave.
 - After a preliminary Kaggle competition, the task was given to predict whether a customer would add another item to the current insurance policy and when that would happen.
- Finalist at Dialog Datathon organised by Dialog Axiata and Datathon organised by SLIIT.
 - After a written test, data from cell towers of Dialog Axiata were given to visualize and wrangle to obtain traffic predictions and the states that users would travel to.
- Honourable Mention Award at the Asia Pacific Informatics Olympiad for the year 2017.
 - An international competitive programming competition where the participants were given a time limit to solve algorithmic problems
- Global Rank 487 and Country rank 35 in IEEEExtreme 12.0 in the year 2018
 - A group event where the algorithmic problems were to be solved within 24 hours against IEEE members all around the world.
- Finalist at CloudHack'17 Cloud Computing Hackathon organised by the IEEE Student Branch of University of Colombo School of Computing
 - Presented a solution to develop a chat bot that can assist users who are suffering from depression
- E.W. Perera Memorial Scholar for the year 2013
 - Award given for the student with the highest marks for ICT prior to the G.C.E. Ordinary Level Education Examination.

PROJECTS & EXPERIENCE

STATISTICAL PROJECTS

- Provided a report on the effectiveness of a marketing campaign of iKON Impressions
 - Worked with a team of data analysts to gather data from Google Analytics and Supermetrics and presented a final presentation on the discovered analytics.
- Completion of Hacktoberfest challenge in 2019 and 2020.
 - Hacktoberfest is a month long celebration of open source contribution where participants have to make a number of meaningful contributions to open source in order to complete the challenge. In 2019 I made several documentation contributions to Python packages. In 2020, the R packages DSjobtracker and tsdataleaks received my contributions in terms of data cleaning and algorithm improvements.
- Provided an [analysis](#) of the effect of government interventions to prevent the spread of Coronavirus in Australia (2020)
- Conducted analysis and visualisations of TidyTuesday datasets ([Marble Racing](#), [Volleyball Matches](#), [independence days between countries](#), and [synchronization between Ferris Wheels](#)).
- Competed in [DengAI: Predicting Disease Spread](#) DrivenData competition to produce a detailed [report](#) on forecasting approaches

- Developed a realtime Data entry [application](#) for Netball matches using R Shiny and Azure SQL Databases. (Discontinued temporarily due to funding issues)
- Developed Shiny applications to explore the [Biodiversity of Poland](#) and [Bird watching sites in Nigeria](#)
- Collaborated on a research project on Time Series Modelling of Soil Moisture in New South Wales, Australia
- Collaborated on the research project of Forecasting Bitcoin Price Behaviour Subject to Dynamic Volatility Condition.
- Collaborated on creating a Shiny Dashboard for a research project on a Taekwondo Ranking System.

DEEP LEARNING

- Implemented a Telegram bot using Chatterbot and Google Cloud Compute Engine for the Natural Language Processing Course.
- Successfully implemented U-Net fully convolutional neural network
 - With the goal of identifying and segmenting foot prints from images of foot soles to identify patients with flat feet syndrome a successful implementation of an end to end model was made with hand labelled masks
- Implemented a Digit Recogniser
 - A real world digit recogniser to be used on a robotic arm was built using traditional CV techniques and Google Cloud Vision.
- Recognised Eye blinking from EEG data
 - Using data collected from a Emotiv Epoc+ Headset of 14 channels predicted the eye blinking of the wearer.
- Participated in 2 Kaggle competitions

TALKS

September 2022	<p>Conducted a workshop at Abuja R user group on Interactive Maps in Shiny dashboards using the leaflet package</p> <p>Leaflet is a leading Javascript library for creating lightweight interactive maps and the leaflet package in R provides an interface to insert leaflet maps in Shiny dashboards. Demonstrated the features and techniques of leaflet package through a real world example of building a Shiny application to monitor bird watching sites using a dataset on bird observations on GBIF, the Global Biodiversity Information Facility</p>
March 2022	<p>Conducted a talk in EDEX Expo 2022 on Sports Analytics in Netball</p> <p>As an initiative of the Sports Analytics Unit of University of Sri Jayewardenepura, a data entry application was to be built for the Sri Lankan Netball team. In this project the data entry application was built using R Shiny and a Microsoft Azure SQL database. The architecture and the thought process behind the app development was shared in EDEX, an annual higher studies exhibition organized by the Royal College Union.</p>
July 2021	<p>Conducted a workshop on Fundamentals of Data Visualization</p> <p>To introduce students to modern BI tools along with the Do's and Dont's of data visualization, organized a short webinar on the Fundamentals of Data Visualization. As a live demo a wireframe sketch of a dashboard based on the career of the popular pop artist P!nk was taken and turned into a shareable interactive web based dashboard using Google Data Studio.</p>
July 2021	<p>Conducted a workshop on Data Visualization in Tableau</p> <p>Provided a tutorial on Tableau, specifically Tableau Public and Tableau Cloud, two free data visualization tools that undergraduates can use to learn and enhance their skills to be better prepared for the industry. In this instance a live demo was done using the starter demo dataset from Tableau on the amount of CO₂ emissions while another live demo was done using an movie profit and review dataset.</p>

- April 2021 Conducted a workshop at RLadies Colombo on [Data Wrangling in R](#)
 Provided a practical example of data wrangling through the tidyverse ecosystem in a real world setting using [Spotify data](#) from [TidyTuesday](#) datasets.
- February 2019 Conducted three sessions in the [Google Developer Group ML Bootcamp 2019](#)
 A two day bootcamp on machine learning was held organized by the Google Developer Group in Sri Lanka. My contribution consisted of conducting sessions on [regularization in neural networks](#), [loss functions](#), and [RNNs for sequential data](#). The audience consisted of many professionals in the Software industry and they were quite enthusiastic on using the concepts that were taught during the sessions. Both sessions were conducted using Python and Tensorflow.
- August 2019 Organized and conducted a session in [Tensorflow All Around 2019](#)
 Tensorflow All Around was an event organized by the Tensorflow User Group of Sri Lanka parallel to similar events organized all through out the globe. I was the head of the Tensorflow User Group of Sri Lanka during this period and I took the initiative to organize the event and presented a talk on using Tensorflow.js for sentiment analysis on the browser. There were over 30 participants who followed along with [the talk](#) by trying out the different components of setting up Tensorflow.js on a webpage and classifying sentiment of text collected through an API call with the help of a Universal Sentence Encoder.

COURSES

- [Completed](#) the course on Natural Language Processing from the National Research University Higher School of Economics in Russia offered through Coursera
- Successfully completed the Baseline : Data, ML, AI [Qwiklab](#) in Google Cloud Platform.
- Earned 10 Badges and 2 Trophies in Microsoft Azure Machine Learning Docs.
- Completed 4 courses in DataCamp ([Bayesian Modelling with RJAGS](#), [Introduction to Spark with R](#), [Scalable Data Processing in R](#), [Intermediate Functional Programming with purrr](#))
- Completed the beginners course in Google Analytics and implemented Google Analytics in the personal website.

LEADERSHIP AND VOLUNTEERING

- 2022 Worked as a session chair in [useR! conference 2022](#)
 Coordinated with speakers and moderated the [Inference Methods session](#) as a session chair in useR! 2022 as a diversity scholarship winner
- 2020/2021 Worked as the President of the [Statistics Society of University of Sri Jayewardenepura](#)
- Conducted three sessions on the topics of [Fundamentals of Data Visualization](#), [Introduction to Data Visualization with Tableau](#) and [Data Wrangling for visualization](#) (Pearl Viz Introductory webinar).
 - Organized the following projects
 - Ask the Experts: A panel discussion where Alumni of University of Sri Jayewardenepura answered questions from the students on entering the industry through statistics. Alumni representing the fields of Data science, Data Analyst and Finance were brought together to answer questions from over 200 students
 - Basics of Git session
 - Pearl Viz '21 Data Visualization Competition: Inspired by Iron Viz from Tableau, Pearl Viz was focused on bringing out the data visualization skills of the students of Faculty of Applied Sciences through tools such as Tableau, Microsoft Power BI, Google Data Studio and Streamlit
 - Outliers program: A program where students were given the chance to write articles on statistical analysis using data according to the topic of the article. The articles were then reviewed by Teaching Assistants and Lecturers before being published online.
 - Excel and Calculator workshop : An introductory workshop on the basics of using Excel and the Scientific calculator conducted for all departments of the Faculty of Applied Sciences.

- Higher Studies webinar: A webinar featuring two alumni who were studying for their Masters in Canada where they answered questions from the students about the things that were needed to prepare the journey into higher studies
- Estadística '21: The annual statistics day: A week long celebration of the products of the Statistics Department, featuring a daily quiz where the questions were based on research papers, a researcher of the day feature where alumni with significant research impact were showcased and finally two thesis presentations of the recently graduated batch.

- 2019 Organised TensorFlow All Around 2019 from the TensorFlow User Group Sri Lanka
Conducted a [coding session](#) on sentiment analysis of News Headlines in USA using [Universal Sentence Encode](#) model in [Tensorflow Hub](#) and used a simple neural network to model sentiment using [Tensorflow.js](#) as the backend.
- 2019/2020 Worked as the Vice President of Society of Computer Science University of Sri Jayewardenepura
- Conducted a live stream on [Youtube](#) teaching competitive programming skills through the Hackerrank platform
 - Organized a competitive programming competition named Odyssey where student's competed by solving algorithm questions.
- 2018 Head of Competitions Committee in Aurora Conference on Computer Science
Developed a quiz system using Angular and Firebase Realtime Database and handled the tasks of hosting a two day quiz competition.
- 2017 Volunteer for ICTA by teaching Scratch, Arduino and Microbit programming for the students of Sapugaskanda Vishaka Balika Vidyalaya
With the participation of over 20 students, a series of lessons were taught covering the fundamentals of developing algorithms and coding using Scratch. Afterwards the best performing students were taught Arduino programming where they built the line following robot using PID algorithm.
- 2017 Head of Public Relations and Branding at National Youth Model United Nations
Designed marketing material and printing material for the National Youth Model United Nations
- 2017 Member of the Developer group of the Battle of the Blues Live Score Mobile App of 2017
Worked on the Android app development of the Battle of the Blues Live Score Mobile App
- 2015/2016 Secretary of [Royal College Computer Society](#)
- Beyond the UI Inter school ICT Competition
 - Battle of the Blues Live Score Mobile App
 - Conducted programming workshop series for Graphic Designing, Java and C++ for three months
 - Provided Technical Services for HeartBeat'15 by designing promotion material and streaming video output to LED wall
- 2018/2019 English Compère for Sisi Arundathee (An annual concert organised by the Student Union of the Faculty of Applied Sciences) and various other events.

SKILLS

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|--------------------------|-----------------------|
| 1. Programming Languages | • SPSS |
| • R | • SAS |
| • Python | • Minitab |
| • C++ | |
| • Javascript | 3. Scientific Writing |
| 2. Statistical Software | • Latex |

- Rmarkdown
 - Quarto
4. Visualization tools and packages
- Tableau
 - PowerBI
 - ggplot2
 - D3
 - matplotlib