

S. Sandun Malpriya Silva

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An ambitious biostatistician/data scientist with 4+ years of experience in both industry and academia. Highly experienced in machine learning with health and medical data for personalization. Worked on cross-disciplinary projects including health and well-being, mental health, cancer, and social science. Consulted over 500 students in machine learning, forecasting and predictive analytics, while doing the PhD, at three ranking universities namely Monash University, Melbourne University (MBS) and Swinburne University of Technology, with a student feedback rating of 4.7 out of 5.

Educational Qualification

From May 2017 - January 2021 **PhD in Statistics**

Thesis Title:

INNOVATIVE STATISTICAL METHODS TO MODEL AND EVALUATE PHYSICAL ACTIVITY PROGRAMS ENGAGEMENT (mHealth)

Supervisors: Professor Denny Meyer and Dr. Madawa Jayawardana

(The project is done in collaboration with Virgin Pulse Global Challenge)



2011 – 2015

B.Sc. (Hons Statistics)

University of Colombo



Academic Experience

University of Sydney, New South Wales, Australia



THE UNIVERSITY OF
SYDNEY



December 2020- Current **Biostatistician**

Involve in medical research within NHMRC Clinical Trial Centre. Here my work involves data analysis, complex statistical programming and design of research studies, as well as interactions with medical research colleagues working on clinical trials research in a wide range of therapeutic areas.

Monash University, Caulfield, Australia

August 2019 – November 2020

Teaching associate



MONASH
University

Advanced Statistical Modelling (ETC3580)

Data Visualisation & Analytics (ETX2250-ETF5922)

Business Forecasting (ETF 3231- ETF5231)

Business Statistics (ETF1100)

Quantitative methods for risk analysis (ETF5952)

Melbourne Business School, The University of Melbourne, Carlton campus, Carlton, Australia



January 2020 -May 2020

Teaching associate for *Master of Business analytics (MBA)*

Swinburne University, Hawthorn, Australia

August 2017 - November 2019

Business Analytics (INF30030)

Teaching associate and a quantitative researcher

Data Mining course (STA30004)



Research and Professional Experience

- Quantitative Researcher for **VicRoads (Public Transport Victoria)** :



This position is funded by a VicRoads tender, within the Centre for Mental Health, which sits in the Faculty of Health, Arts and Design and under Swinburne Research. This project has established the predictive value of offence data as a proxy measure of future crash risk and identified the important characteristics, license and offence histories of drivers with high future fatal and serious injury crash risk.

- External Statistical Consultant at **Peter MacCallum Cancer Research Center**, Victoria



This study is looking for the predictors and survival analysis on the cause of death in “adolescents and young adult” cancer patients. The study will be utilizing various descriptive and predictive methods including survival analysis, random-forest and penalized logistic regression.

Academic Awards and Grants

- **Swinburne University Postgraduate Research Award** (Swinburne University Postgraduate Research Awards (SUPRAs) are awarded to students of exceptional research potential undertaking doctoral studies.)
- **Travel grant** to present research findings at Data Science, Statistics and Visualisation Conference, Kyoto, Japan, 13-15 August 2019
- **Travel grant** to attend Joint International Society for Clinical Biostatistics and Australian Statistical Conference (ISCB ASC 2018), Melbourne, Victoria, Australia, 26-30 August 2018
- Second runner up in representing the Department of Statistics, Data Science and Epidemiology (from Faculty of Health, Arts and Design category) at Swinburne Research Open Day Conference, Swinburne University of Technology, Melbourne, Victoria, Australia, 11 May 2018

Research interests

Biostatistics, Clinical trial research design, Predictive analytics with medical and health data, Survival analysis

Industry Related Experience

May 2017 – Dec 2020
Challenge (VPGC)

Working as a ‘**Data Scientist**’ at Virgin Pulse Global



Projects:
Data base

Carrying out the PhD research to answer three research questions using Virgin Pulse

1. How can VPGC improve the efficiency of outlier and cheater detection?
2. How can the VPGC model the engagement dynamics of participants and thereby identify participants likely to drop out in the future so that timely remedial actions can be taken?

3. How can personalised motivational cues be built into the physical activity module of the VPGC program?

Feb 2016 – March 2017

Working as a ‘**Talent & Data Analyst**’ at MAS Holdings (Linea Aqua).

- Projects:
1. Employee attrition predictive model using demographic data, work related data and compensation data
 2. Innovative Statistical method in employee evaluations and annual salary increments
 3. About to implement a scientific method in team member allocation for a maximum productivity

Aug 2014 - Oct 2014

Intern as a **Market analyst**,
RMS Client Service Unit, Neilson Company (Pvt) Ltd

Management Related Professional Qualification

Chartered Institute Of Management Accountants (CIMA)

Contact Identification Reference- 1-9FJ0DX

Additional Subject Related Software Skills



- Excellent problem-solving skills with data driven strategies.
- Experience in the use of R, Python, MATLAB, SPSS, Eviews, Minitab, PowerBI, and Microsoft office package software in visualizing and analyzing data.
- Knowledge in SQL, php, C++ and Java.
- Knowledge in deep learning techniques such as Recurrent Neural networks

Research Publications

Publications:

Silva, S. S. M. (2021). Innovative Statistical Methods to Model and Evaluate Physical Activity Programs Engagement (Doctoral dissertation, Swinburne University of Technology). https://researchbank.swinburne.edu.au/file/150cae66-a2a9-4e42-9e8a-98098bd3cbf4/1/Sampathawaduge_Silva_Thesis.pdf

Silva SSM, Meyer D, Jayawardana M. Detecting possible persons of interest in a physical activity program using step entries: Including a web-based application for outlier detection and decision-making. *Biometrical Journal*. 2020;1–14. <https://doi.org/10.1002/bimj.201900008>

Muir, S. D., Silva, S. S., Woldegiorgis, M. A., Rider, H., Meyer, D., & Jayawardana, M. W. (2019). Predictors of Success of Workplace Physical Activity Interventions: A Systematic Review. *Journal of Physical Activity and Health*, 16(8), 647-656. Doi: <https://doi.org/10.1123/jpah.2018-0077>

Silva SSM, Jayawardana MW, Meyer D (2018) Statistical methods to model and evaluate physical activity programs, using step counts: A systematic review. *PLOS ONE* 13(11): e0206763. <https://doi.org/10.1371/journal.pone.0206763>

Silva, S. S. M., Tilakaratne, C. D., & Munasinghe, R. (2016, September). Impact of day of the week effect on All Share Price Index (ASPI) and a comparison of forecastability of GARCH and NARX models. In 2016 Sixteenth International Conference on Advances in ICT for Emerging Regions (ICTer) (pp. 311-320). IEEE. doi:[10.1109/ICTER.2016.7829936](https://doi.org/10.1109/ICTER.2016.7829936)

Slikboer, R., Muir, S.D., Silva, S.S.M. et al. A systematic review of statistical models and outcomes of predicting fatal and serious injury crashes from driver crash and offense history data. *Syst Rev* 9, 220 (2020). <https://doi.org/10.1186/s13643-020-01475-7>

de Boer, K., Muir, S. D., Silva, S. S. M., Nedeljkovic, M., Seabrook, E., Thomas, N., & Meyer, D. (2021). Videoconferencing psychotherapy for couples and families: A systematic review. *Journal of Marital and Family Therapy*, 47(2), 259-288. <https://doi.org/10.1111/jmft.12518>

Albury, Kath, Amir Aryani, Jane Farmer, James Kelly, Anthony McCosker, Sandun Silva, Julie Tucker, and Jihoon Woo. "Data for Good Collaboration." (2021). Swinburne University of Technology
<https://doi.org/10.26185/x93d-4v29>

Meyer, D., Muir, S. D., **Silva, S. S. M.**, Slikboer, R., McIntyre, A., Imberger, K. and Pyta V., Modelling the relationship of driver licence and offence history with fatal and serious injury (FSI) crash involvement. Journal of Safety Research (accepted for publication)

Papers under review or in preparation:

Silva, S. S. M., Meyer, D., & Jayawardana, M. (2020). User engagement with Mixture Hidden Markov Models. Australian and New Zealand Journal of Statistics (under review).

Silva, S. S. M., Meyer, D., & Jayawardana, M. (2020). Personalised step count prediction using machine learning. Journal of Medical Internet Research.

Heynemann, S., Lewin, J. H., Thompson, K., Moncur, D., Silva S.S.M. and Jayawardana M.W. Predictors of suicide risk in adolescent and young adults (AYA) with cancer. Journal of Cancer Medicine (under review)

Gebski, V., **Silva, S. S. M.**, Byth, K., Alicia, J., and Keech, A. Improving Efficiency of Standard Statistical Analyses for Time-to-Event Outcomes in Genome-Wide Association Studies (GWAS). Journal of Computational Statistics & Data Analysis (in preparation with Prof. Val Gebski at NHMRC CTC University of Sydney)

Conferences and Presentations:

Silva, Sandun ; Jayawardana, Madawa W. ; Meyer, D. ; 2018. Mixture Hidden Markov models to detect the engagement dynamics of mhealth participants; Data science, statistics and visualisation conference, Kyoto, Japan, 13-15 August 2019.

2nd Runner up from Faculty of health, arts and design category

Silva, Sandun ; Meyer, D. ; Jayawardana, Madawa W. ; 2018. Innovative Statistical Methods to Evaluate and Model Corporate Physical Activity Programs, Swinburne Research Open Day conference, Swinburne University of Technology, Melbourne, Victoria, Australia, 11 May 2018

Silva, Sandun ; Meyer, D. ; Jayawardana, Madawa W. ; 2018. A user-friendly interface for outlier detection in physical activity step counts, Joint International Society for Clinical Biostatistics and Australian Statistical Conference (ISCB ASC 2018), Melbourne, Victoria, Australia, 26-30 August 2018

Silva, Sandun ; Jayawardana, Madawa W. ; Meyer, D. ; 2018. Statistical methods for personalising physical activity programs using step counts; systematic review, FHAD HDR student conference, Swinburne University of Technology, Melbourne, Victoria, Australia, 31 September 2018

Silva, Sandun ; Jayawardana, Madawa W. ; Meyer, D. ; 2018. Outlier detection with a web application, Machine Learning and Intelligent Optimization Research Group, Swinburne University of Technology, Melbourne, Victoria, Australia, 08 August 2018

Silva, Sandun ; Jayawardana, Madawa W. ; Meyer, D. ; 2019. Personalising digital health with data science, Virgin Pulse Global Challenge, Virgin Pulse, Melbourne, Victoria, Australia, 08 September 2019

Silva, Sandun ; Jayawardana, Madawa W. ; Meyer, D. ; 2020. Digital health engagement: An application using R, R and Cluster Functions (RCF) User Group, Peter MacCallum Cancer Research Center, Melbourne, Victoria, Australia, 28 August 2020

Silva, S.S.M., Tilakaratne, C.D., & Munasinghe, R. (2016). Impact of day of the week effect on all share price index (ASPI) and a comparison of forecastability of GARCH and NARX models. Paper presented at the 16th

International Conference on Advances in ICT for Emerging Regions (ICTer), Negombo, Sri Lanka, 1-2 September (pp. 311-320).

Poster Presented

Silva, Sandun ; Jayawardana, Madawa W. ; Meyer, D. ; 2018. Predicting the future state of engagement of participants in mobile based health programs, Swinburne Research Conference 2019 | Changemakers, Swinburne University of Technology, Melbourne, Victoria, Australia, 23 July 2019

Sports and Interests

Swimming

Basketball

Non Related Referees

Prof. Ian C. Marschner
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I do hereby certify that the above particulars are true and correct to the best of my knowledge.

Date:...2021/05/03....

..S.S.M.Silva