# Sachithra Perera

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## SUMMARY


I am passionate about research and development in the field of Remote Sensing and Machine Learning. The purpose of my Ph.D. work is to study efficient design optimization strategies for Earth engine data utilizing Machine learning and deep learning techniques. My goal is to apply this knowledge to understand earth phenomena better and to make predictions


## EDUCATION

**Ph.D. in Computational and Data Science (CADS)** **Aug 2019-Present**

Overall GPA: 3.927/4.00

Chapman University, Orange, CA

**MSc. in Data Science** **Aug 2019**

Overall GPA: 3.97/4.00

Michigan Technological University (MTU), Houghton, MI

**MSc in Statistics at MTU** **Aug 2018**

Overall GPA: 4.00/4.00

Top students award for Multivariate Statistics (2017)

**BSc, Statistics and Operations Research-First Class (Hons.)** **Jan 2014**

University of Peradeniya (UOP), Sri Lanka (SL).

Overall GPA: 3.80/4.00

University prize for Academic Excellence (2013)

## RELEVANT COURSEWORK

Machine Learning and Artificial Intelligence | Predictive modeling | Remote sensing and Earth systems |Optimization| Inventory management and planning| Management accounting and decision-making techniques| Planning, budgeting, and forecasting| Human resource management| Project management

## COMPUTER / TECHNICAL SKILLS

R| PYTHON|GIT|Google Earth Engine|ArcGIS| LINUX|SPSS| SAS| MATLAB| MINITAB| SQL| LINGO| Visual Studio| JAVA| C| C++| MS Office| Excel| Access

## RESEARCH PUBLICATION

- Land use land cover change detection in the Mediterranean region using a Siamese neural network and image processing, IEEE IGARSS 2021
- Forecasting Vegetation Health in the MENA Region by Predicting Vegetation Indicators with Machine Learning Models, June 2020, IEEE IGARSS 2020
- Investigating Decadal Changes of Multiple Hydrological Products and Land-Cover Changes in the Mediterranean Region for 2009–2018, Earth Systems and Environment 2021
- Multidecadal Analysis of Beach Loss at the Major Offshore Sea Turtle Nesting Islands in the Northern Arabian Gulf, Ecological Indicators 2020
- When can VAM with balanced feature provide an improved solution to an unbalanced Transportation Problem? November 2015, European Journal of Scientific Research

## PROJECT EXPERIENCE

### 1. Masters project- Michigan Technological University 2018

- Investigated best machine learning models (such as logistic regression, Lasso, Neural network, SVM, decision trees, random forest, and gradient boosting machine) to predict 30-day hospital readmission risk of patients
- Identified all factors, including social factors that cause hospital readmissions
- Recommended to use neural network for higher predictive performance and social factors need to be included when building the models which are not currently accounted in predictions
- Defended in front of a mathematical science and computer science audience.

### 2. Academic Projects-Michigan Technological University 2016-2018

**Data mining:** Classification of Age (as "High School" or "Adult") based on social media usage, classification of spam mail, and classification of music popularity. Using machine learning models such as

- Decision trees, Naive Bayes, Random Forests, support vector machine (SVM) with an RBF kernel, ensemble methods such as bagging and boosting.
- Evaluate the classification performance using the classification metrics such as accuracy, and area under the curve

**Time-series Analysis: Forecast the future 60-day stock price of Apple Inc. in NASDAQ**

- Built ARIMA model using the stock price data of Apple Inc. in NASDAQ (AAPL) collected within the last five years and performed the several time series tests
- Forecast the future 60-day stock price using Random walk with drift model and the versatility of forecasting was compared using other benchmark methods such as mean forecast and naïve forecast
- Tested the appropriateness of the GARCH model to forecast the stock price, Presented in the class

**Predictive modeling: Predict wine quality based on physicochemical tests to guide vineyards regarding quality and price**

- Modeled wine quality based on physicochemical tests of wine using machine learning models (such as Logistic Regression, Penalized Models, Neural Networks, Naive Bayes, KNN, etc.)
- Built models in the training data using cross-validation resampling techniques
- Used the top three models to predict on the testing set and the overall best model was selected - Presented in the class

### 3. Sri Lanka Institute of Information Technology (SLIIT), Sri Lanka 2016

- Optimized an auto navigation system created for SLIIT 7th& 8th-floor using fuzzy logic optimization tool- (Machine learning project with the collaboration of Computer science and Networking department)
- Developed a MATLAB program for Steganography based on indexing project - (Information security project with the collaboration of Computer science and Networking department)

## INTERNSHIP EXPERIENCE

**Production Intern-Quality Assurance, Noyon-Lanka-MAS Holdings**, **Oct 2013-Jan 2014**

Board of Investments (BOI), Export Processing Zone, Biyagama, Sri Lanka.

- Developed a quality assurance procedure to monitor quality issues of the production process with an Access database and created a user interface in Visual Studio 2010 by using VB.net.
- Demonstrated the quality assurance system to the management and the concept was accepted by them
- Extracted key functionalities in the developed system by the IT department to implement in their existing SAP system

## WORK EXPERIENCE

**Graduate Teaching Assistant & Graduate Research Assistant, Chapman University** **Aug 2019-Present**

- Teach 'Elementary Algebra' (Math 98), 'Precalculus'(Math 101), 'Introduction to Statistics'(Math 203) | Prepare materials and lessons to facilitate curriculum, grading homework and exams
- Conduct research on machine learning and remote sensing

**Graduate Teaching Assistant (Data Science), MTU** **Aug 2018- Aug 2019**

- Support instructor of 'Predictive modeling' (MA5790) and 'Time Series'(MA 5781) by grading graduate students' homework| Evaluate student presentation| Develop materials to offer these classes online| Conduct office hours

**Graduate Teaching Assistant (Mathematical Sciences), MTU** **Aug 2016- Jun 2018**

- Teach 'Statistical Methods' (MA2720) weekly| Prepare materials and lessons to facilitate curriculum, grading homework, and exams

**Instructor, Sri Lanka Institute of Information Technology (SLIIT), Sri Lanka** **Jan 2016- Jul 2016**

- Conduct tutorial discussions and lab sessions for BSc. (Special Hons.) in Information Technology and BBA. Special Honors Degree students. Grading assignments & exams.

**Temporary Lecturer, Dept. of Mathematics, UOP, Sri Lanka** **Feb 2014- Nov 2015**

- Conduct Lectures and practical sessions, Grading papers, and exams

## LEADERSHIP

International student ambassador, Chapman University **Aug 2021- Present**
Geomatics and Environmental Engineering (GaEE), Reviewer **Jul 2021-Jan 2022**
IEEE-IGRASS 2021 conference, Session chair **Jul 2021**
Schmid Student Leadership Council (SSLC leader), Chapman University **Aug 2020- Present**
President of Media Unit, | Assistant Secretary of Math Unit, St.Paul's Girls' School, SL **Jan 2005 - Jul 2006**