

Dr. Satyakama Paul

Ph.D and Post Doctorate in Engineering Management (Machine Learning and Artificial Intelligence)

CAREER HIGHLIGHTS

- Specialize in **Data Science - Mining and Analytics** in Banking and Insurance domain.
- Specialize in **Fraud analytics/ anomaly detection**.
- Rich experience in **Machine Learning & Artificial Intelligence** - More than six years of experience in trans-disciplinary subjects and international team.
- **Youtube channel** - <https://www.youtube.com/user/doitonath>

CORE SKILLS

- Proficiency in coding in Statistical and AI programming languages (*R* and *Matlab*).
- Experience in statistical consultancy and report writing in Business and Economic domains.

CONTACT DETAILS

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No. 4, 2nd Cross
Sun City Main Road, Sarjapur Signal, Ibbalur
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PRESENT ENGAGEMENT

Senior Group Manager - Subject Matter Expert (ML & AI) in Insurance Analytics domain at **WNS Global, Bangalore, India**.

Jan 9, 2017– present

Present project: The objective of the work is to design a fraud detection system for automobile insurance claims. The dataset consists of 33 features (individual and vehicle attributes, historical details of previous policies held, claim amount, fraud status etc) over 50K instances.

Client: Insurance company, Australia

Algorithms used: Feature selection - Boruta, Classification - Multi Layer Perceptron Neural Network

Last project: The objective of the work is to design an intelligent classifier that classifies to a high degree of accuracy three classes of insurance claims (over, under and correct) from a dataset of 40,000 customers of 140 features.

Client: Insurance company, Australia

Algorithms used: Feature selection - Boruta, Class balancing - Racing Strategy, Classification - Random forest decision trees

Technology platform: R

LAST
ENGAGEMENT

Associate Specialist in the Innovations Lab (Machine Learning Technology) of
Synechron Technology Pvt. Ltd, Bangalore, India.

Aug 1, 2016– Jan 6, 2017

Project: Development of an intelligent system that analyzes both the textual and numeric part of customer complaint (in mortgages issues of a bank) to predict whether the bank has to pay or not pay monetary compensations in mitigating the complaints.

Client: Bank, USA

Algorithms used: Text analytics - Latent Dirichlet Allocation, Supervised learning - Support Vector Machines.

Platform: R

Project: Development of a predictive algorithm to predict which credit card holder would default on his/her next payment. The dataset consisted of 70 credit card time series transaction data of each card holder, over 10,000 card holders.

Client: Bank, USA

Algorithms used: Prediction algorithm - Recurrent Neural Network

Platform: R

PREVIOUS
IMPLEMENTED
PROJECTS DURING
PHD & POSTDOC

- Prediction of acquiring companies in a financial Merger & Acquisition scenario in a high dimensional data space
 - Broader research area: Anomaly detection
 - Brief description
 - * Feature selection in the high dimensional feature space that consisted of a combination of categorical and continuous features was carried out through ReliefF algorithm.
 - * A new methodology based on a combination of Mutation operation and Negative and Positive Selection Algorithms (that belongs to the field of Artificial Immune Systems) was used for the prediction of acquiring targets.
 - * The visualization of the results were done through Vector Space Modeling based on cosine similarity.
- Investigation of the various factors that affect after sales customer satisfaction in a car company.
 - Broader research area: Customer satisfaction
 - Brief description
 - * Multinomial logistic regression was integrated into the framework of SERVQUAL. The research investigated effects of the various dimensions of SERVQUAL on the overall customer satisfaction.
- Prediction of consumer confidence as a function of the various categories of crimes.
 - Broader research area: Crime economics
 - Brief description
 - * Granger causality is used to find the causal relationship between the consumer confidence index and the crime.
 - * A Multilayer Perceptron based Neural Network was used to model the complex non-linear relationship between the various categories of crime and consumer confidence.
- Computationally Intelligent interpretation of the relationship between Crime and Economic growth
 - Broader research area: Crime economics
 - Brief description
 - * A Self Organizing Maps based Neural Networks was used to visually investigate the similarities and differences between various categories of crimes and growth. The novelty of the work lied in understanding the clustering behavior of the variables in the absence of any prior knowledge about the same, and ease of explaining the results to laymen.
- A study of the Insurance company as a Complex Adaptive System through Statistical Risk Analysis
 - Broader research area: Complex adaptive engineering system
 - Brief description
 - * Statistical analysis of risk measures through Value at Risk and Conditional Tail Expectation is carried out to show how an individual insurance company copes under external complexities.

EDUCATION

University of Johannesburg, South Africa

Ph.D, Dept. of Mechanical Engineering Science, 2011 – 2015

- Thesis Topic: Modelling of Merger & Acquisition Target Prediction for Novice Acquirers – A Computational Intelligence Perspective
- Supervisors: Tshilidzi Marwala, Ph.D and Fernando Buarque de Lima Neto, Ph.D

The University of Burdwan, India

MBA in Human Resource Management, Dept. of Business Administration (Human Resource), 2004

University of Calcutta, India

BSc in Economics, Statistics and Mathematics, 2002

FULL TIME EXPERIENCES

Ph.D Candidate and Post-doctoral fellow

Feb 2011 – Jan 2016

Dept. of Mechanical Engineering Science,
University of Johannesburg

Supervisor: Tshilidzi Marwala, Ph.D and Fernando Buarque de Lima Neto, Ph.D

Lecturer

July 2009 – Jan 2010

Dept. of Management Studies,
Sikkim Manipal Institute of Technology

Academic Associate

April 2009 – May 2009

Dept. of General Management,
Indian Institute of Management, Indore
Supervisors: A. Rizvi, Ph.D

Research Fellow

Feb 2007 – Feb 2008

Dept. of Industrial Engineering and Management,
Indian Institute of Technology, Kharagpur
Supervisors: Pratap K J Mohapatra, Ph.D

Research Associate

March 2006 – Feb 2007

ICFAI Research Centre, India
Supervisors: R. Goswami, Ph.D

HR Executive

Feb 2005 – March 2006

RB Enterprises India Pvt. Ltd, India

PART TIME EXPERIENCES

Part time Faculty at the

Feb 2010 – Dec 2010

1. Alpha Institute of Business Management
2. West Bengal State University, Dept. of Psychology

1. [Journal] **S. Paul**, H. Muller, R. Preiser, F. Buarque de Lima Neto, T. Marwala, P. De Wilde “Developing a Management Decision-making model based upon Complexity perspective with reference to Bee Algorithm”. *Emergence : Complexity and Organization*, 2014, DOI: 10.emerg/10.17357.6f80b2f5523b2b070ed9d809a15c56e0.
2. [Conference] **S. Paul**, B. Twala and T. Marwala “Modeling After Sales Customer Satisfaction using Multinomial Logistic Regression – Insights from a South African car company” Accepted at the *IEEE International Conference on Systems, Man, and Cybernatics*, 2014.
3. [Book chapter] **S. Paul**, A. Janecek, F. Buarque de Lima Neto and T. Marwala “A New Approach for Suggesting Takeover Targets Based on Computational Intelligence and Information Retrieval Methods : A Case Study from the Indian Software Industry” *Mathematics of Uncertainty Modeling in the Analysis of Engineering and Science Problems*, S. Chakraverty, Ed., Hershey, IGI Global, pp. 290–308, ISBN13 : 9781466649910, 2014.
4. [Conference] **S. Paul**, T. Marwala, and F. Buarque de Lima Neto “An Assessment Model for Human Performance. Measurement – Theoretical Model and Distance based Implementation” Proceedings of *8th Annual London Business Research Conference* Imperial College, London, UK, ISBN: 978-1-922069-28-3, 2013.
5. [Conference] **S. Paul**, A. Janecek, F. Buarque de Lima Neto and T. Marwala “Applying the Negative Selective Algorithm for Merger and Acquisition Target Identification : Theory and Case Study” *BRICS Congress on Computational Intelligence and 11th Brazilian Congress on Computational Intelligence*, Recife, Brazil, pp. 609–616, DOI: 10.1109/BRICS-CCI-CBIC.2013.107, 2013.
6. [Journal] **S. Paul**, B. Twala and T. Marwala “Organizational adaptation to Complexity: A study of the South African Insurance Market as a Complex Adaptive System through Statistical Risk Analysis” *Systems Engineering Procedia*, Vol. 4, pp. 1–8, DOI: 10.1016/j.sepro.2011.11.043, 2012.

1. [Journal] **S. Paul**, A. Janecek, F. Buarque de Lima Neto and T. Marwala “Merger and Acquisition Target Prediction using Positive Selection: Principle, Methodology and Case Studies”. *International Journal of Advanced Computer Science and Applications*, SAI Organization, 2016.
2. [Journal] **S. Paul**, S. Chakraverty and T. Marwala “Effect of Crime on Consumer confidence: Insights from select South African provinces using Artificial Neural Networks”. *International Journal of Advanced Computer Science and Applications*, SAI Organization, 2016.
3. [Journal] C. Leke, **S. Paul**, and T. Marwala ‘Proposition of a Theoretical Model for Missing Data Imputation using Deep Learning and Evolutionary Algorithms”. *International Journal of Advanced Computer Science and Applications*, SAI Organization, 2016.

1. **S. Paul**, P. Mjwara, T. Marwala, E. Mabuza, and M. Cele “SOUTH AFRICA’S NATIONAL SYSTEM OF INNOVATION - Complex adaptive system perspective”. *The Thinker*, Vol. 36, pp. 36–39, 2012.

AWARDS	Research Awards	
	<ul style="list-style-type: none"> • Best Paper Award (3rd place) at BRICS Congress on CCI & CBIC • Best Paper Award - World Journal of Management • Associate Fellowship - World Business Institute, Australia 	Sept 2013 July 2013 July 2013
	Travel Awards	
	<ul style="list-style-type: none"> • Training Programme in Educational Quality Management, KIT, Germany • Workshop on Evolutionary Computation, UPE-POLI, Brazil • Course on Complexity, Univ. of Stellenbosch, South Africa 	Aug – Sept 2012 April – June 2012 June – July 2011
COMPUTER SKILLS	<ul style="list-style-type: none"> • Programming languages • Application development • Big data platform • Statistical Packages • Applications and Typesetting • Operating systems 	R, MATLAB R Shiny Spark(Intermediate) SPSS Microsoft Office Suite, L ^A T _E X Ubuntu, Windows 8 and 10
GENERAL INFORMATION	Date of Birth Nationality IELTS Overall Band Score Marital Status	28 th Dec 1979 Indian 7/9 Married
REFERENCES	Pranesh Kn Data Scientist Synechron Technology Pvt.Ltd Global Technology Park 560 103, Bangalore, India	Phone: +91 95353 71738 E-mail:pranesh@synechron.com
	Tshilidzi Marwala Deputy Vice Chancellor (RTI) Univ. of Johannesburg, APK Campus, Johannesburg 2006, South Africa	Phone: +27 (0)11-559-4814/4815 E-mail:tmarwala@uj.ac.za