

# TEO SUSNJAK PhD

## PERSONAL INFORMATION

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## APPOINTMENTS HELD AND WORK EXPERIENCE

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2012 - Current	<i>Senior Lecturer in Information Technology and Computer Science</i> MASSEY UNIVERSITY, School of Mathematical and Computational Sciences, Albany, Auckland Master of Analytics - Programme Coordinator (NZ & Singapore) Data Science - Subject Lead
2011 - 2012	<i>Machine Learning Analyst and Software Developer</i> COMPAC SORTING LTD., Onehunga, Auckland Conducting experiments on datasets and producing reports Worked on C++ development projects integrating machine learning into existing code, conducted training seminars in machine learning
2008 - 2011	<i>Part-time Professional Tennis Coach</i> TENNIS NORTHERN REGIONAL ACADEMY, Albany, Auckland Assistant High-performance Coach
2005 - 2007	<i>Assistant Database Administrator and Programmer</i> NZ FUNDS LTD., CBD, Auckland MS SQL Database maintenance, developed and optimised stored SQL stored procedures, worked on front-end web based development in ASP.NET and back-end in VB.NET
2003 - 2004	<i>Junior Programmer</i> KALTENBACH & VOIGT GMBH, Warthausen, Germany Worked on C and database development projects
2000 - 2003	<i>Professional Tennis Coach</i> TC BIBERACH, Biberach, Germany Head coach of Tennis Club Biberach and several other smaller clubs in the surrounding area
1996 - 2000	<i>Int. Touring Tennis Professional and NZ Davis Cup Representative</i> SELF-EMPLOYED 1996-1999, Holder of multiple NZ Championship Titles, competed at each of the four Grand Slams

## ACADEMIC QUALIFICATIONS

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- 2013 Doctor of Philosophy in COMPUTER SCIENCE, **Massey University**, Albany  
Thesis: "Efficient boosted ensemble-based machine learning in the context of cascaded frameworks"  
*Awarded with inclusion onto "The Dean's List of Outstanding Theses"*  
Advisors: Dr. Andre BARCZAK and Prof. Ken HAWICK
- 2010 Master of Science in COMPUTER SCIENCE, **Massey University**, Albany  
Thesis: "Accelerating classifier training using AdaBoost within cascades of boosted ensembles"  
*Awarded with Distinction*  
Advisor: Dr. Andre BARCZAK
- 2008 Bachelor of Science, **Massey University**, Albany  
Major: Computer Science  
Minor: Information Systems  
*Graduated as Massey Scholar*

## TEACHING PROFILE AND CURRICULUM DEVELOPMENT

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At present, I mostly teach into core Data Science major courses as well as into the cross-College, Master of Analytics Qualifications.

I devised and developed the Data Science major at Massey University. I have created four new courses in the area of Data Science and as such have been a key person in developing Massey's capability in the analytics space. This major has been recognised by industry, from whom I have secured official endorsements for the Data Science major.

### CURRENTLY TEACHING

#### Undergraduate

- 158.222\* Data Wrangling and Machine Learning (Python with Jupyter)  
158.333\* Applied Machine Learning and Data Visualisation (Python, Hadoop Technologies)

#### Postgraduate

- 159.739\* Introduction to Analytics (Python with Jupiter, SQL, Base-ASS)  
158.755\* Data Science - Making Sense of Data (Python with Jupyter)

### PREVIOUSLY TAUGHT

#### Undergraduate

- 158.100 Computer Applications and the Information Age  
158.212 Application Software Development (C#, V.NET)  
158.326 Software Architecture (Design Patterns, C#, V.NET)  
158.329 Software Engineering Project  
158.345 Social and Professional Issues in Information Technology  
159.333 Programming Project (Android Development, Python)  
158.392 Special Topic

#### Postgraduate

- 158.753\* Rapid Application Development (Model-driven Software Engineering)

(\*) indicates that the course was proposed and developed by me.

## ACADEMIC SUPERVISION

### PhD

2019 - NOW	Gomathy Suganya ( <i>Learner Analytics Dashboards</i> ) - Primary Supervisor
2018 - NOW	Vajisha Udayangi Wanniarachchi ( <i>Hate Speech Patterns in Social Media</i> ) - Secondary Supervisor
2020 - 2022	Nasim Ahmed ( <i>Performance Modelling, Analysis and Prediction of Spark Jobs in Hadoop Cluster</i> ) - Secondary Supervisor
2020 - 2022	Jiawei Zhao ( <i>Cross-Lingual Learning in Models</i> ) - Secondary Supervisor
2018 - 2020	Tim McIntosh ( <i>Malicious JavaScript Detection &amp; Deterrence</i> ) - Secondary Supervisor
2016 - 2020	Rahila Umer ( <i>Learning Analytics - Predicting Student Outcomes</i> ) - Primary Supervisor

### Masters

2018 - 2019	Yujia Li ( <i>Hadoop Spark Parameter Tuning</i> )
2018 - 2019	Jinjin Fan ( <i>Real-time New Zealand GDP Prediction using Machine Learning</i> )
2018 - 2019	Gomathy Suganya ( <i>Learning Analytics</i> )

### Professional Masters

2022 - NOW	Firman Misran ( <i>Developing a Generalised Approach to Audience Segmentation for Different Types of Products</i> )
2022 - NOW	Yoona Yeo ( <i>Predicting Probability of Match-fixing in Tennis Matches</i> )
2022 - NOW	Ismail Rahim ( <i>On Conducting Collaborative-filtering on the Instacart Dataset</i> )
2022 - NOW	Kelvin Teo ( <i>On Predicting Outcomes of Professional Tennis Matches</i> )
2021 - NOW	Eugene Ferreira ( <i>Prediction and Identification of At-risk Children</i> )
2021 - 2022	Paula Maddigan ( <i>Forecasting Demand at Shorecare Urgent Care Clinics</i> )
2021 - 2022	Jiang Zheng ( <i>A Novel Classification System for Expenses A Novel Classification System for Expenses Management using Gaussian Mixture</i> )
2021 - 2022	Yang Yu ( <i>Expense Report Automation</i> )
2021 - 2022	Mumtaz Aleem ( <i>Commercial Buildings: Water Saving &amp; Hygiene</i> )
2021 - 2022	Xin Dong ( <i>Smart Water Usage Research</i> )
2021	Revi Bharathan ( <i>Predictive Analysis of Student Progression in Educational Data Mining using Catboost</i> )
2021	Subarni Mohan ( <i>Using Natural Language Processing Techniques to Classify Non-Standard Information Technology Service (ITS) Requests</i> )
2021	Neelish Vasnani ( <i>Sentiment Analysis on the Twitter Usage of G7 World Leaders During COVID-19</i> )
2021	Ananya Krithika Thyagarajan ( <i>Predicting Students' Progression and Enrolment using Python</i> )
2021	Jyotsna Malode ( <i>Automatic Classification of Service Desk Requests</i> )
2021	Marcus Tan ( <i>Application of Resampling Techniques, Cost-Sensitive Learning, and Ensemble Methods on Imbalanced Multi-class Text Classification</i> )
2020 - 2021	Paul Shepherd ( <i>Service Desk Classification Project</i> )
2020 - 2021	Juan Wu ( <i>Understanding Consumer Behaviour in a Virtual Convenience Store</i> )
2020 - 2021	Shenli Luan ( <i>An Exploratory Analysis of Purchase Behaviour and Sentiment Evaluation in a Virtual Reality Retail Store</i> )
2020 - 2021	Wei Wang ( <i>Classify Service Request with Natural Language Processing and Machine Learning</i> )
2020 - 2021	Rahul Reghunandan ( <i>Student Retention and Progression Analysis in PSB Singapore</i> )
2020 - 2021	Lara Mariel Sumgpang ( <i>Massey University ITS Ticket Classification Model</i> )
2020 - 2021	Abarnaa Manivelan ( <i>Service Desk Request Classification Report - Classifying customer requests using Natural Language</i> )
2020 - 2021	Hoai An Pham ( <i>Massey University IT Service Desk: Using NLP and Machine Learning Techniques</i> )
2020 - 2021	Gayatri Satyavarpu ( <i>A Systematic Study on Natural Language Processing in Information Technology Services at Massey University</i> )

2020 - 2021	Meenakshi Singh ( <i>Service Desk Request Classification</i> )
2019 - 2020	Oybek Tashpulatov ( <i>Forecasting Apple Harvest Crops</i> )
2019 - 2020	Catherine Thwaites ( <i>Spend Wizard Recommendation</i> )
2019 - 2020	Chao Ma ( <i>Customer Segmentation: New World Shoppers Aged 40 &amp; Under</i> )
2019 - 2020	Evgenii Vladimirovich Belkin ( <i>Data Cleansing of Paymark's Customer Database</i> )
2018 - 2019	Ryan Hemmings ( <i>The Creation of a Sentiment Analysis Tool for Perceptive Research</i> )
2018 - 2019	Ryan Truong ( <i>Customer Segmentation for Sky City</i> )
2018 - 2019	Andrew Plinston ( <i>Direct Effects &amp; Cross-channel Effects of Advertising for the Warehouse</i> )
2018 - 2019	Yiwen Mao ( <i>Redefine the Clusters for the app User of Burger King New Zealand</i> )
2018 - 2019	Justin Jia ( <i>Feature Development Project in Paymark</i> )
2018 - 2019	Jane Chen ( <i>Benchmarking Business Performance for Paymark Merchants in the Café Chains through Competitor Analysis</i> )
2018 - 2019	Mian Muhammad Sohaib Irfan ( <i>Business Intelligence Engine</i> )
2017 - 2018	Labiba Rahman ( <i>Analysis of Customer Segmentation Models at Foodstuffs</i> )
2017 - 2018	Stefan Poninghaus ( <i>Application of Process Mining to WebLog Analysis</i> )

## Postgraduate Projects

2022 - NOW	Yiming Ren ( <i>Machine Learning Approaches to Predicting Soccer Match Outcomes</i> )
2018	Frederick Tan ( <i>Analysis of Ensemble-based Feature Selection Methods</i> )
2017	Tingting Li ( <i>Android Tennis Application Search Algorithm Optimisation</i> )
2017	Gian Guison ( <i>Android Tennis Application UI Development</i> )
2017	Zack Lei ( <i>Snaptennis Android App Testing</i> )
2017	Subith Benny ( <i>Process Mining and Machine Learning on Loan Application Data</i> )
2014	Xianglin Zhang ( <i>Analysis and Identification of Problem Gamblers</i> )
2013	Mridu Gupta ( <i>implementation of Integration Testing for the Massey Robotics Platform</i> )

## PHD EXAMINER

2015	Yu Zhao	Event-based transient notification architecture and NoSQL solution for astronomical data management
2014	Syed Muhammad Ali Shah	On the automation of dependency-breaking refactorings in Java

## MASTERS EXAMINER

2021	Munish Rathee	Safety Screening of Auckland's Harbour Bridge Movable Concrete Barrier
2016	Saman Lawe	Optimization of traffic signals using Deep Learning Neural Networks
2015	James Curtis	Meta-learning using stochastic market structures

## OFFICIAL INDUSTRY ENDORSEMENTS FOR THE DATA SCIENCE MAJOR

In my role as the Data Science Subject Lead, I have secured the following industry endorsements.

*"One of the four megatrends that will shape our industry over the next decade is big data. Data is the new currency and being able to draw insight from data and predict outcomes will be the new business advantage. I am excited to see that Massey is introducing a degree in Data Science and am encouraged to see how quickly they are responding to transformation in our industry."*



Nigel Parker, Director,  
Developer Experience,  
Microsoft NZ

*"It's great to see that Massey University has acknowledged the role that data has within an organisation. Turning data into information to support critical business decisions and to help build competitive advantage is clearly the way in which organisations need to head. I'm impressed that Massey has recognised this and can provide a degree to fill the gap that I encounter in the resource market on a regular basis."*



Jared Smith,  
Enterprise Information Manager,  
Auckland Transport

*"The future of health delivery is Precision Medicine and personalised healthcare: bringing together all sources of health and social information to tailor care to each individual, while delivering better decision making, health outcomes and efficiencies for providers and communities. Data Science provides the tools and insights for us to create these future solutions, and we commend Massey on building a degree that prepares graduates to make a tangible contribution in our industry."*



Tim Whittington  
Vice President: Data & Analytics  
Orion Health

*"Big data is unlocking a whole new world for businesses by shaping a better understanding of our most valuable commodity - our customers. Those that understand it, make meaning of it and evolve the field of big data further will be the game-changers of the future. We commend Massey University for having the foresight to develop such a valuable course in Data Science which will see graduates play a vital role in the evolving businesses of the future."*



Matt Hobbs,  
Head of Business Development  
and Partnerships,  
Two Degrees Mobile Limited

*"Data is the digital life blood for any organisation that wishes to understand its customers and communities better. The future success of business and industry will be dependent on its capability to unlock the knowledge and insights that data brings. Congratulations to Massey University for embracing the future and supporting NZ business. By creating this degree Massey has established itself at the forefront of valuing the science behind data analytics."*



Ashton Kwan,  
Senior Manager Business  
Information, Finance,  
Westpac

*EROAD have endorsed this degree. EROAD provide an automated solution for Road User Charge purchase and management.*



## CURRENT RESEARCH PROJECTS AND DIRECTION

*Key interests and focus areas:* APPLIED MACHINE LEARNING, EXPLAINABLE AI, FORECASTING, ENSEMBLE-BASED MACHINE LEARNING, BOOSTING ALGORITHMS, AUTOMATED FEATURE-SELECTION TECHNIQUES

REAL-TIME NZ GDP ECONOMIC TRACKER	I have developed a algorithms that are able to track NZ economic activity in real-time on a daily basis. The machine learning algorithms access a variety of inputs from this project's industry partners in order to make predictions based on daily spending patterns in NZ, traffic movements, export and import volumes as well as rail cargo deliveries. This research has been productionised and made freely available to the NZ public through <a href="http://www.gdplive.net">www.gdplive.net</a> and is an ongoing piece of research in order to continuously improve the algorithms.
LEARNING ANALYTICS AND STUDENT OUTCOMES PREDICTION	I have a full Ethics Application allowing me and my PhD students to work on devising algorithms that are capable of identifying at-risk students in a timely fashion with the goal of enabling interventions to take place and thus improving student retention and outcome rates. This work is being productionised within Massey University and is an ongoing piece of research.
PATIENT-FLOW FORECASTING	I have been granted access to patient-flow data from ShoreCare which is NZ's largest Urgent Care provider. I have been working with them on a project to develop forecasting models that are able to accurately predict short-term and long-term patient demand as well as develop front-end tools that operationalise this technology. The developed tools are already in use, and further refinement and development of the algorithms is ongoing.
SPORTS OUT-COME PREDICTION	I have been pursuing some topics of personal interest around the predictability of outcomes in various professional sports. I have been working on applying machine learning to the prediction of Tennis match outcomes until now, and have been supervising students on this topic. Given the accessibility of large amounts of publicly available data, I am also turning my attention to other sports too.

## PUBLICATIONS

### REFEREED JOURNAL ARTICLES

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- 2022 | **Susnjak, T.**, & Maddigan, P.(2022-submitted). Forecasting Patient Demand at Urgent Care Clinics using Explainable Machine Learning. *Computers in Biology and Medicine*.
- Ramaswami, G., **Susnjak, T.**, & Mathrani, A. (2022-submitted). A Combined Framework of Evolving Automated Decisions and Explanations of a Machine Learning Model using Counterfactual and Anchors to support students. *Big Data and Cognitive Computing*.
- Wanniarachchi, V. U, Scogings, C, Susnjak, T & Mathrani, A. (2022-under 2nd review). Fat Stigma and Body Objectification: A Text Analysis Approach Using Social Media Content. *Digital Health*.
- Wanniarachchi, V. U., Mathrani, A., **Susnjak, T.**, & Scogings, C.(2022-under 2nd review). Hate Speech Patterns in Social Media: A Methodological Framework and Fat Stigma Case Study Incorporating Sentiment Analysis, Topic Modeling and Discourse Analysis. *Australasian Journal of Information Systems*.
- Umer, R., **Susnjak, T.**, Mathrani, A., & Suriadi, S. (2022). Data quality challenges in educational process mining: building process-oriented event logs from process-unaware online learning systems. *International Journal of Business Information Systems*, 39(4), 569-592.
- Wanniarachchi, V. U., Mathrani, A., **Susnjak, T.**, & Scogings, C. (2022). Methodological Aspects in Study of Fat Stigma in Social Media Contexts: A Systematic Literature Review. *Applied Sciences*, 12(10), 5045.
- Bunker, R., & **Susnjak, T.** (2022). The Application of Machine Learning Techniques for Predicting Match Results in Team Sport: A Review. *Journal of Artificial Intelligence Research*, 73, 1285-1322.
- Susnjak, T.**, Ramaswami, G. S., & Mathrani, A. (2022). Learning analytics dashboard: a tool for providing actionable insights to learners. *International Journal of Educational Technology in Higher Education*.
- Ramaswami, G., **Susnjak, T.**, & Mathrani, A. (2022 - in press). Use of Predictive Analytics within Learning Analytics Dashboards: A Review of Case Studies. *Technology, Knowledge and Learning*.
- Ramaswami, G., **Susnjak, T.**, & Mathrani, A. (2022). On Developing Generic Models for Predicting Student Outcomes in Educational Data Mining. *Big Data and Cognitive Computing*.
- Ahmed, N., Barczak, A. L., Rashid, M. A., & **Susnjak, T.** (2022). Runtime prediction of big data jobs: performance comparison of machine learning algorithms and analytical models. *Journal of Big Data*.

- 2021 Mathrani, A., **Susnjak, T.**, Ramaswami, G., & Barczak, A. (2021). Perspectives on the challenges of generalizability, transparency and ethics in predictive learning analytics. *Computers and Education Open*, 2, 100060.
- Ahmed, N., Barczak, A. L. C., Rashid, M. A., & **Susnjak, T.** (2021). An Enhanced Parallelisation Model for Performance Prediction of Apache Spark on a Multinode Hadoop Cluster. *Big Data and Cognitive Computing*, 5(4), 25 pages. doi:10.3390/bdcc5040065
- Ahmed, N., Barczak, A. L. C., Rashid, M. A., & **Susnjak, T.** (2021). A parallelization model for performance characterization of Spark Big Data jobs on Hadoop clusters. *Journal of Big Data*, 8(1). doi:10.1186/s40537-021-00499-7
- Umer, R., **Susnjak, T.**, Mathrani, A., & Suriadi, L. (2021). Current stance on predictive analytics in higher education: opportunities, challenges and future directions. *Interactive Learning Environments*. doi:10.1080/10494820.2021.1933542
- 2020 Wanniarachchi, V. U., Mathrani, A., **Susnjak, T.**, & Scogings, C. (2020). A systematic literature review: What is the current stance towards weight stigmatization in social media platforms?. *International Journal of Human Computer Studies*, 135. doi:10.1016/j.ijhcs.2019.102371
- Ahmed, N., Barczak, A. L., **Susnjak, T.**, & Rashid, M. A. (2020). A comprehensive performance analysis of Apache Hadoop and Apache Spark for large scale data sets using HiBench. *Journal of Big Data*, 7(1), 1-18.
- 2019 McIntosh, T., Jang-Jaccard, J., Watters, P., & **Susnjak, T.** (2019). Masquerade Attacks Against Security Software Exclusion Lists. *Australian Journal of Intelligent Information Processing Systems*, 16(4), 1.
- Ramaswami, G., **Susnjak, T.**, Mathrani, A., Lim, J., & Garcia, P. (2019). Using educational data mining techniques to increase the prediction accuracy of student academic performance. *Information and Learning Science*, 120(7-8), 451-467. doi:10.1108/ILS-03-2019-0017
- 2017 Suriadi, S., **Susnjak, T.**, Ponder-Sutton, A. M., Watters, P. A., & Schumacher, C. (2017). Using Data-Driven and Process Mining Techniques for Identifying and Characterizing Problem Gamblers in New Zealand. *Complex Systems Informatics and Modeling Quarterly*, (9), 44-66.
- Umer, R., **Susnjak, T.**, Mathrani, A. S., & Suriadi, S. (2017). On predicting academic performance with process mining in learning analytics. *Journal of Research in Innovative Teaching & Learning*, 10(2), 160-176. doi:10.1108/JRIT-09-2017-0022
- Umer, R., **Susnjak, T.**, Mathrani, A., & Suriadi, S. (2017). Prediction of Students' Dropout in MOOC Environment. *International Journal of Knowledge Engineering*, 3(2), 43-47. doi:10.18178/ijke.2017.3.2.085
- 2016 Suriadi, S., **Susnjak, T.**, Ponder-Sutton, A. M., Watters, P. A., & Schumacher, C. (2016). Using Data-Driven and Process Mining Techniques for Identifying and Characterizing Problem Gamblers in New Zealand. *Complex Systems Informatics and Modeling Quarterly*, (9), 44-66.
- Parsons, D., **Susnjak, T.**, & Mathrani, A. (2016). Design from detail: Analyzing data from a global day of coderetreat. *Information and Software Technology*, 75, 39-55. doi:10.1016/j.infsof.2016.03.005



- 2014 | Parsons, D., **Susnjak, T.**, & Lange, M. (2014). Influences on regression testing strategies in agile software development environments. *Software Quality Journal*, 22(4), 717-739. doi:10.1007/s11219-013-9225-z
- Parsons, D., Mathrani, A., **Susnjak, T.**, & Leist, A. (2014). Coderetreats: Reflective Practice and the Game of Life. *IEEE Software*, 31(4), 58-64. doi:10.1109/MS.2014.25
- 2013 | Parsons, D., **Susnjak, T.**, & Lange, M. (2013). Influences on regression testing strategies in agile software development environments. *Software Quality Journal*, 1-23.
- Susnjak, T.**, Barczak, A., Reyes, N., & Hawick, K. (2013). Coarse-to-fine multiclass learning and classification for time-critical domains. *Pattern Recognition Letters*.
- 2012 | **Susnjak, T.**, Barczak, A. L. C., & Hawick, K. A. (2012). Adaptive cascade of boosted ensembles for face detection in concept drift. *Neural Computing and Applications*, 21(4), 671-682. doi:10.1007/s00521-011-0663

## REFEREED CONFERENCE PROCEEDINGS

- 2020 | Ahmed, N., Barczak, A. L. C., Bazai, S. U., **Susnjak, T.**, & Rashid, M. A. (2020). Performance Analysis of Multi-Node Hadoop Cluster Based on Large Data Sets. In 2020 IEEE Asia-Pacific Conference on Computer Science and Data Engineering, CSDE 2020. doi:10.1109/CSDE50874.2020.9411587
- Ramaswami, G. S., **Susnjak, T.**, Mathrani, A., & Umer, R. (2020). Predicting Students Final Academic Performance using Feature Selection Approaches. In 2020 IEEE Asia-Pacific Conference on Computer Science and Data Engineering, CSDE 2020. doi:10.1109/CSDE50874.2020.9411605
- 2019 | McIntosh, T., Jang-Jaccard, J., Watters, P., & **Susnjak, T.** (2019). The Inadequacy of Entropy-Based Ransomware Detection. In *Communications in Computer and Information Science* Vol. 1143 CCIS (pp. 181-189).
- Wanniarachchi, V. U., Mathrani, A., **Susnjak, T.**, & Scogings, C. (2019). Gendered objectification of weight stigma in social media: a mixed method analysis. In *Australasian Conference on Information Systems* (pp. 362-372). Fremantle, Western Australia
- Ramaswami, G. S., **Susnjak, T.**, & Mathrani, A. (2019). Capitalizing on Learning Analytics Dashboard for Maximizing Student Outcomes. In 2019 IEEE Asia-Pacific Conference on Computer Science and Data Engineering, CSDE 2019.
- Umer, R., Mathrani, A., **Susnjak, T.**, & Lim, S. (2019). Mining activity log data to predict student's outcome in a course. In *PervasiveHealth: Pervasive Computing Technologies for Healthcare* (pp. 52-58).
- Umer, R., **Susnjak, T.**, Mathrani, A., & Suriadi, S. (2019). A learning analytics approach: Using online weekly student engagement data to make predictions on student performance. In 2018 International Conference on Computing, Electronic and Electrical Engineering, ICE Cube 2018.
- 2018 | Reyes, N. H., Barczak, A. L. C., & **Susnjak, T.** (2018, August 23). Autonomous Navigation in Partially Known Confounding Maze-Like Terrains Using D\* Lite with Poisoned Reverse. In 2018 World Symposium on Digital Intelligence for Systems and Machines (DISA). Kosice, Slovakia.
- Reyes, N. H., Barczak, A. L. C., & **Susnjak, T.** (2018). Autonomous navigation in partially known confounding maze-like terrains using D\* Lite with poisoned reverse. In *DISA 2018 - IEEE World Symposium on Digital Intelligence for Systems and Machines, Proceedings* (pp. 67-76).

- 2017 | Umer, R., Susnjak, T., Mathrani, A., & Suriadi, S. (2017). Predicting Student's Academic Performance in a MOOC Environment. In DMCCIA-2017 (pp. 119-124). Kaula Lumpur, Malaysia.
- Reyes, N. H., Barczak, A. L. C., Susnjak, T., & Jordan, A. (2017). Fast and smooth replanning for navigation in partially unknown terrain: The hybrid Fuzzy-D\*lite algorithm. In *Advances in Intelligent Systems and Computing* Vol. 447 (pp. 31-41).
- 2016 | Suriadi, S., Susnjak, T., Ponder-Sutton., Watters, P., & schumacher. (2016). Characterizing problem gamblers in New Zealand: A novel expression of process cubes. In *Proceedings of the CAiSE'16 Forum at the 28th International Conference on Advanced Information Systems Engineering*.
- Safar, A., Reyes, N. H., Barczak, A. L. C., Susnjak, T., & Ganley, A. (2016). Automatic alignment and comparison on images of petri dishes containing cell colonies. In *2015 International Conference on Image and Vision Computing New Zealand (IVCNZ)* (pp. 1-6). Auckland, New Zealand: IEEE. doi:10.1109/IVCNZ.2015.7761512
- Suriadi, S., Susnjak, T., Ponder-Sutton, A. M., Watters, P. A., & Schumacher, C. (2016). Characterizing problem gamblers in New Zealand: A novel expression of process cubes. In *CEUR Workshop Proceedings* Vol. 1612 (pp. 185-192).
- 2015 | **Susnjak, T.**, Kerry, D., Barczak, A., Reyes, N., & Gal, Y. (2015). Wisdom of crowds: An empirical study of ensemble-based feature selection strategies. In *Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics)* Vol. 9457 (pp. 526-538). doi:10.1007/978-3-319-26350-2\_47
- Parsons, D., **Susnjak, T.**, & Mathrani, A. (2015). The software developer cycle: Career demographics and the market clock : SQL the new COBOL?. In *ACM International Conference Proceeding Series* Vol. 28-September-2015 (pp. 86-90). doi:10.1145/2811681.2811698
- Bayati, S., Parsons, D., **Susnjak, T.**, & Heidary, M. (2015). Big data analytics on large-scale socio-technical software engineering archives. In *Information and Communication Technology (ICoICT), 2015 3rd International Conference on* (pp. 65-69). IEEE.
- 2014 | Barczak, A. L. C., **Susnjak, T.**, & Reyes, N. H. (2014). Characterisation of the Discriminative Properties of the Radial Tchebichef Moments for Hand-written Digits. In *Proceedings of the 29th International Conference on Image and Vision Computing New Zealand, IVCNZ 2014, Hamilton, New Zealand, November 19-21, 2014* (pp. 154-159). Hamilton, NZ. doi:10.1145/2683405.2683433
- 2013 | Reyes, N. H., Barczak, A. L. C., & **Susnjak, T.** (2013). Tuning fuzzy-based hybrid navigation systems using calibration maps. In *Advances in Intelligent Systems and Computing* Vol. 208 AISC (pp. 713-722). doi:10.1007/978-3-642-37374-9\_68
- Barczak, A. L. C., **Susnjak, T.**, Reyes, N. H., & Johnson, M. J. (2013). Colour Segmentation for Multiple Low Dynamic Range Images using Boosted Cascaded Classifiers. In *IVCNZ 2013 (International Conference on Image and Vision Computing New Zealand)* (pp. 136-141). Wellington, NZ. doi:10.1109/IVCNZ.2013.6727005
- Susnjak, T.**, Barczak, A., & Reyes, N. (2013). A Decomposition Machine-learning Strategy for Automated Fruit Grading. In *Proceedings of the World Congress on Engineering and Computer Science 2013* (pp. 819-825).

- 2012 | Mendonca, L., Barazani, B., Chaves, B., Torikai, D., Ibrahim, R., Piazzeta, M., **Susnjak, T.** (2012). Study of a Copper Capacitive MEMS as a Sensor for Automotive Fuel Evaluation. In ABCM Symposium Series in Mechatronics.
- Susnjak, T.,** Barczak, A., & Reyes, N. H. (2012). Multiclass cascades for ensemble-based boosting algorithms. In K. Kersting, & M. Toussaint (Eds.), Proceedings of the Sixth Starting AI Researchers' Symposium (pp. 330-335). Montpellier, France. doi:10.3233/978-1-61499-096-3-330

## BOOK CHAPTERS

- 2017 | Reyes, N. H., Barczak, A. L., **Susnjak, T.**, & Jordan, A. (2017). Fast and smooth replanning for navigation in partially unknown terrain: the hybrid fuzzy-D\* lite algorithm. In Robot Intelligence Technology and Applications 4 (pp. 31-41). Springer, Cham.
- 2016 | Reyes, N. H., Barczak, A. L. C., **Susnjak, T.**, & Jordan, A. (2016). Fast and Smooth Replanning for Navigation in Partially Unknown Terrain: The Hybrid Fuzzy-D\* lite Algorithm. In Robot Intelligence Technology and Applications 4 (pp. 31-41). Springer International Publishing.
- 2015 | Wang, W., Reyes, N. H., Barczak, A. L. C., **Susnjak, T.**, & Sincak, P. (2015). Multi-behaviour robot control using genetic network programming with fuzzy reinforcement learning. In Robot Intelligence Technology and Applications 3. Springer International Publishing, 2015. (Vol. 345, pp. 151-158). doi:10.1007/978-3-319-16841-8\_15
- 2014 | **Susnjak, T.**, & Barczak, A. (2014). On combining boosting with rule-induction for automated fruit grading. In Transactions on Engineering Technologies: Special Issue of the World Congress on Engineering and Computer Science 2013 (pp. 275-290). doi:10.1007/978-94-017-9115-1\_21
- 2013 | Reyes, N. H., Barczak, A. L. C., **Susnjak, T.**, Sinák, P., & Vaák, J. (2013). Real-time fuzzy logic-based hybrid robot path-planning strategies for a dynamic environment. In B. Igel'nik, & J. M. Zurada (Eds.), Efficiency and Scalability Methods for Computational Intellect (pp. 115-141). Information Science Reference. doi:10.4018/978-1-4666-3942-3.ch006

## THESES AND DISSERTATIONS

- 2012 | **Susnjak, T.** (2012). Efficient boosted ensemble-based machine learning in the context of cascaded frameworks: a thesis presented in partial fulfilment of the requirements for the degree of Doctor of Philosophy in Computer Science at Massey University, Auckland, New Zealand (Doctoral dissertation, Massey University).
- 2009 | **Susnjak, T.** (2009). Accelerating classifier training using AdaBoost within cascades of boosted ensembles: a thesis presented in partial fulfillment of the requirements for the degree of Master of Science in Computer Sciences at Massey University, Auckland, New Zealand.

## TECHNICAL REPORTS, PREPRINTS AND OPEN ACCESS ARCHIVE

Maddigan, P., & **Susnjak, T.** (2022). Forecasting Patient Demand at Urgent Care Clinics using Machine Learning. arXiv preprint arXiv:2205.13067.

Barczak, A., Reyes, N., & **Susnjak, T.** (2019). Assessment of the local tchebichef moments method for texture classification by fine tuning extraction parameters. arXiv.

Bunker, R., & **Susnjak, T.** (2019). The application of machine learning techniques for predicting results in team sport: a review. arXiv.

**Susnjak, T.**, Schumacher, C., Ali, A., Brook, A., Geertsema, P., Matthewson, J., Owens, R. & Smith, J. (2019). Towards a global index of shared prosperity: a case study on New Zealand. Working Paper. Auckland: Knowledge Exchange Hub, Massey University.

**Susnjak, T.**, & Schumacher, C. (2018). Towards Real-Time GDP Prediction. Knowledge Exchange Hub, Massey University. doi:10.33217/KEH/Gdplive/001/12.2018

## CONFIDENTIAL REPORT

2012 | **Susnjak, T.** (2012). A report to Compac Sorting Ltd. on the feasibility of implementing machine learning into the InVision software.

## PUBLICLY RELEASED DATASET

2012 | Barczak, A., Reyes, N., Abastillas, A., Piccio, A., & **Susnjak, T.** (2012). MU\_HandImages\_ASL. Retrieved from [http://www.massey.ac.nz/albarcza/gesture\\_dataset2012.html](http://www.massey.ac.nz/albarcza/gesture_dataset2012.html)

## GRANTS AND CONTESTABLE FUNDING

\$82,860	2017	Principal applicant for the Massey Major Capital Equipment Grant to purchase and set up hardware for a Hadoop Big Data Processing Cluster. The Hadoop Cluster will be used in teaching for the Data Science papers, research at cross-College level as well as external consultancy.
\$20,000	2017	Co-PI for an internal grant awarded by the Massey Business School to partner with Eroad in order to apply analytics to devising a novel real-time Economic Index in NZ based on data gathered from heavy vehicles equipped with GPS tracking devices.
\$22,000	2016	Co-PI for a Massey Strategic Innovation Fund to establish the Massey Analytics Lab for engaging with industry and providing an entrepreneurial incubator for analytics-based projects.
\$5,000	2016	Principal applicant for an internal Institute of Natural and Mathematical Sciences Grant to employ a student over the summer months to work on the TAB problem gambler prediction.
\$90,999	2015	Co-PI for a Callaghan Innovation R&D Fellowship Grant for a PhD student to work on a Learning Analytics research project together with an industry partner Xorro Solutions.
\$9,630	2015	Consulting project with NZ Post involving the implementation of innovative data-imputation solutions using machine learning.
\$20,000	2014	Minor Capital Equipment grant valued at \$20,000 for developing a Deep Learning Cluster to support ongoing research amongst our PhD students.