Sunil Aryal, PhD

School of Information Technology
Faculty of Science, Engineering & Built Environment
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Current Position

2019-	*Lecturer in IT* (full-time continue), Deakin University, Australia

Teaching

Programming, Data Structure and Algorithm, Databases, Data Mining, Business Information Systems, Project Management, Student Projects

Areas of Specialisation

Data mining and machine learning - Similarity Measures, Classification, Clustering, Anomaly Detection, Content-based Information Retrieval, Ensemble-based and Random methods, Learning from small subsamples of data

Appointments Held

2016-2019	Lecturer (full-time), Federation University, Mt Helen, Australia
2013-2016	Lecturer (sessional), ATMC (Federation University), Melbourne, Australia
2014-2015	Data Engineer (part-time), Gyde Inc., Melbourne, Australia
2014-2015	Teaching Associate (sessional), Monash University, Clayton, Australia
2014-2015	Research Assistant (casual), Federation University, Churchill, Australia
2013-2013	Software Developer (casual), Monash University, Clayton, Australia
2012-2013	Research Assistant (casual), Monash University, Churchill, Australia
2009-2010	Research Student (full-time), Katholieke University, Leuven, Belgium
2008-2009	Software Developer (full-time), Ingenico Asia Pacific International, Warriewood, Australia
2006-2006	IT Officer (full-time), Nepal Bank Limited, Damauli, Nepal
2002-2005	Computer Teacher (full-time), Kathmandu Don Bosco Higher Secondary School, Kathmandu, Nepal

Education

2017	PhD, Monash University, Australia
Thesis title	A data-dependent dissimilarity measure: An effective alternative to distance measures
Supervisors	Prof. Kai Ming Ting (Federation/Monash University), Dr. Gholamreza (Reza) Haffari (Monash University) and Prof. Takashi Washio (Osaka University)

Examiners	Prof. Tu-Bao Ho (Japan Advanced Institute of Science and Technology) and Prof. Bernhard Pfahringer (Waikato University)
2012	MIT(Research), Monash University, Australia
Thesis title	New generative classifiers with mass-based likelihood estimation
Supervisors	Prof. Kai Ming Ting (Federation/Monash University) and A/Prof. Madhu Chetty (Federation/Monash University)
Examiners	Prof. Geoff Webb (Monash University) and Prof. Xiaodong Li (Royal Melbourne Institute of Technology University)
2008	MIT(Coursework), University of Southern Queensland, Australia
2005	BIT, Purbanchal University, Nepal

Selected Publications

2018	M. Santhanagopalan, M. Chetty, C. Foale, **S. Aryal** and B. Klein, Relevance of frequency of heart-rate peaks as indicator of biological stress level, To appear In *Proceedings of The 25th International Conference on Neural Information Processing (ICONIP 2018)* (Accepted in August 2018)
2018	**S. Aryal**, Anomaly detection technique robust to units and scales of measurement, In *Proceedings of the 22nd Pacific-Asia Conference on Knowledge Discovery and Data Mining (PAKDD)* pp 589-601 Springer
2017	**S. Aryal**, K. M. Ting, T. Washio and G. Haffari, Data dependent dissimilarity measure: An effective alternative to geometric distance measures, *Knowledge and Information Systems* 53(2) pp 479–506 Springer
2017	K. M. Ting, T. Washio, J. R. Wells and **S. Aryal**, Defying the gravity of learning curve: a characteristic of nearest neighbour anomaly detectors, *Machine Learning* 106(1) pp 55–91 Springer
2017	**S. Aryal**, A data-dependent dissimilarity measure: An effective alternative to distance measures, *PhD Thesis*, Clayton School of Information Technology, Monash University
2016	**S. Aryal**, K. M. Ting, and G. Haffari, Revisiting Attribute Independence Assumption in Probabilistic Unsupervised Anomaly Detection, In *Proceedings of the 11th Pacific Asia Workshop on Intelligence and Security Informatics (PAISI)* pp 73-86 Springer
2014	**S. Aryal**, K. M. Ting, G. Haffari and T. Washio, Mp-dissimilarity: A data dependent dissimilarity measure, In *Proceedings of the IEEE International Conference on Data Mining (ICDM)* pp 707-712 IEEE
2014	**S. Aryal**, K. M. Ting, J. R. Wells and T. Washio, Improving iForest with Relative Mass, In *Proceedings of the 18th Pacific-Asia Conference on Knowledge Discovery and Data Mining (PAKDD)* pp 510-521 Springer
2013	K. M. Ting, T. Washio, J. R. Wells, F. T. Liu and **S. Aryal**, DEMass: A new density estimator for big data, *Knowledge and Information Systems* 35(3) pp 493-524 Springer
2012	**S. Aryal**, New generative classifiers with mass-based likelihood estimation, *Master's Thesis*, Gippsland School of Information Technology, Monash University

The list of my publications are available in my Google Scholar and DBLP pages.

Selected Talks & Posters

2018	K. M. Ting, **S. Aryal** and T. Washio, Which Outlier Detector should I use?, In the IEEE ICDM 2018, Singapore [One-day long tutorial]
2017	K. M. Ting and **S. Aryal**, The impact of sample size and dissimilarity on learning in dynamic

and uncertain environments, In the *US-AUS Robotics & Autonomy Workshop*, Adelaide, Australia [*Invited talk to pitch research idea*]

2015   **S. Aryal**, K. M. Ting, G. Haffari and T. Washio, Beyond tf-idf and cosine distance in documents dissimilarity measure, In the *11th Conference of Asia Information Retrieval Societies (AIRS)*, Brisbane, Australia [*Poster*]

2014   **S. Aryal**, K. M. Ting, G. Haffari and T. Washio, Mp-dissimilarity: A data dependent dissimilarity measure, In the *IEEE International Conference on Data Mining (ICDM)*, Shenzhen, China [*Talk*]

Grants, Honours & Awards

2015   Asian Information Retrieval Society (AIRS) student travel award to attend AIRS conference in Brisbane, Australia

2015   Monash Institute of Graduate Research (MIGR) student travel grant to attend AIRS conference in Brisbane, Australia

2014   Alberta Innovates Centre for Machine Learning (AICML) student travel award to attend IEEE ICDM in Shenzhen, China

2014   Monash Institute of Graduate Research (MIGR) student travel grant to attend IEEE ICDM in Shenzhen, China

2013   Australian Postgraduate Award (APA) for PhD at Monash University

2012   Best Poster Award at the Faculty of IT higher degrees by research conference, Monash University

2012   Monash Postgraduate Publication Award (PPA)

2012   Research student stipend for MIT(Research) from a research grant funded by US Air Force Research Laboratory awarded to Prof. Kai Ming Ting

2009   Research student scholarship by a research grant funded by European Research Council awarded to Dr. Jan Ramon

2007   Dean's award for outstanding academic achievement by University of Southern Queensland (USQ)

2007   Academic scholarships during MIT(Coursework) study at USQ

2006   ISACA prize by Information Systems Audit and Control Association (ISACA) Brisbane Chapter

2001   Outstanding student full tuition fee waiver scholarship to study BIT

Service to the Profession

2019   Program Committee Member - AAAI 2019 and PAKDD 2019

2018   Reviewer - The 27th International Symposium on Industrial Electronics (ISIE) 2018

2017   Reviewer - International Workshop on Effective Engineering Education (IWEEE) 2017

Professional Memberships & Associations

2008-   Australian Computer Society

2014-   IEEE Computer Society

2014-   IEEE Young Professionals