Loong Kuan Lee

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Education

2019–2023	**Doctor of Philosophy (PhD)**, *Monash University*, Melbourne
2015–2018	**Bachelor of Informatics and Computation Advanced (Honours)**, *Monash University*, Melbourne, Final Mark - 88/100
	Specialised in Computer Science and Statistics & Probability. Graduated with First Class Honours.

Doctoral Thesis

title	*Computing Divergences between High Dimensional Graphical Models*
supervisors	Geoff Webb, Daniel Schmidt, Nico Piatkowski
year	2023
descripion	We develop a method for computing the joint, marginal, and conditional $\alpha\beta$ - divergences, a family of divergences that include the Kullback-Leibler divergence and the Hellinger distance. We then apply this method to modifying the parameters of a decomposable model such that the resulting model is some target amount of divergence away from the original.

Honours thesis

title	*Generating Concept Drift by Shuffling Instances*
supervisors	Geoff Webb
year	2018
description	We propose a method for shuffling the instances in a dataset such that the divergence between the empirical distribution of the first and second half of the resulting dataset reaches some target amount of divergence.

Experience

Academia

2016–2017	**Undergraduate Research Assistant**, *Monash University*, Melbourne

Researched **Concept Drift** , specifically how to measure and visualise concept drift in both streaming and static data.

Tasks:
- Developed a system to incrementally measure changes to the probability distributions of a data set over time, using **Java** and the library **Weka** .
- Developed a companion web application for the system above using **Scala** with the **Play Framework** , **Javascript** , and **HTML** .
- Used **R** extensively to visualise results and produce reports.

Industry

2016 **Winter Research Project**, *Agilent & Monash University*, Melbourne
Developed application to compare and analyse large groups of timeseries data over the same domain, using **R** and **Shiny** .

2017 **Software Tester**, *Carsales*, Melbourne
Tested backend APIs being developed to move product from a monolith to a microservice architecture. Helped develop a prototype model to predict car deprecation.
Tasks:
 - Created automated tests for APIs in CI pipeline using **Postman** , **Node.js** , and **Jenkins** .
 - Carried out performance testing of APIs using **Scala** and **Gatling** .
 - Managed communication across multiple teams to track bugs reported by consumers of the backend APIs and bugs I found in systems the APIs depend on.
 - Developed prototype to predict the depreciation of a car using **R** , **Azure ML Studio** , and **Vue.js** .

Scholarship & Awards

2015 Faculty of IT International Merit Scholarship

2015 Dean's Achievement Award

2016 Summer Research Scholarship — Faculty of IT

2016 Winter Research Scholarship — Faculty of IT

2017 Information Technology IBL (Industry Based Learning) Placement Scholarship

2017 Dean's Achievement Award

2019 Australian Government RTP (Research Training Program) Scholarship

Publications

Published

Loong Kuan Lee, Nico Piatkowski, François Petitjean, and Geoffrey I. Webb. Computing Divergences between Discrete Decomposable Models. *Proceedings of the AAAI Conference on Artificial Intelligence*, 37(10):12243–12251, June 2023 .

Geoffrey I. Webb, Loong Kuan Lee, Bart Goethals, and François Petitjean. Analyzing concept drift and shift from sample data. *Data Mining and Knowledge Discovery*, 32(5):1179–1199, September 2018 .