

Adam Banham

Researcher, Developer, Consultant, BInfoTech(Hons), 23 Citations Curriculum Vitae

Profile

My research expertise lies in process mining, focusing on the analysis of data extracted from business systems to gain insights into organisational operations. I specialise in developing quantitative, data-driven methodologies to eliminate human bias in business process management, offering clear visual diagnostics of internal processes and representations for decision making in processes.

During my candidature, I published 4 peer-reviewed articles, including two Q1 journal publications. Additionally, I have been a reviewer for leading conferences, including CAiSE and ICPM, actively contributing to the process mining community. My doctoral research, supported by Prof. Moe T. Wynn (QUT, Brisbane, AU), Dr. Robert Andrews (QUT, Brisbane, AU), and Prof. Sander J. J. Leemans (RWTH Aachen, DE), is now awaiting conferment, likely be awarded by May 2025.

My technical background includes developing and maintaining large-scale software systems as a full-stack developer, where I designed and delivered a data science platform for a technology startup. I am proficient in multiple programming languages and experienced with cloud platforms for deploying scalable services. My consulting experience includes working with businesses to improve processes using process mining and business process management techniques.

I am seeking opportunities as a post-doctoral researcher or lecturer to advance my expertise in process mining, contribute to innovative teaching and mentoring, and engage in impactful research collaborations within computer science and information systems.

Education

2025 ↑

2021

Doctor of Philosophy

Queensland University of Technology, Brisbane, Australia

Process Mining with Exogenous Data *Likely conferment in May 2025.*

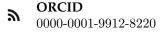
The thesis aims to advance process mining by pursuing the following goal: **How can exogenous influences on decision making in processes be investigated?** Where *exogenous data* refers to external contextual data streams, such as time series, that may be used within process mining analysis. To investigate this goal, two sub-questions are used to guide the research:

- How can exogenous influences on processes be represented/visualised/analysed?
- What are desirable properties for quantifying data-aware process models?

The former question focuses on combining exogenous data with process mining, and what types of modelling formalisms or process enhancement techniques could study exogenous influences. The latter focuses on how process enhancement outcomes, i.e. data-aware models, should be quantified and if techniques that adhere to desirable properties can be proposed.



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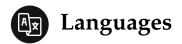


G Scholar scholar.google.com.au



- xPM: Enhancing Exogenous Data
 Visibility publicly available here.
 - **Comparing Conformance Checking for Decision Mining: An Axiomatic Approach** publicly available here.
 - Discovering the Influence of Exogenous Data on Decisions in Processes

Soon to be publicly available



English	Native Speaker
Python	Intermediate/Senior
Java	Intermediate
AWS	Intermediate
Javascript/HTML/C	SS Fluent
Rust	Novice

Bachelor of Information Technology (Honours)

Queensland University of Technology, Brisbane, Australia

Exploiting Event Payloads to Discover Hierarchies in Event Logs

This honours project conducted with Prof. Sander J.J. Leemans and Dr Robert Andrews and consisted of the following:

- An investigation focused on how contextual data in event logs can be used to simplify process mining outcomes.
- Developed a framework to automatically discover if an data attribute could simplify outcomes in a process hierarchy.
- Evaluated the new framework on synthetic and publicly accessible event logs.

The thesis uses publicly available events log to empirically evaluate an approach to automatically detect a suitable construction of a multi-key for the mulit-level miner proposed by Prof. Sander J.J. Leemans.

Academic Experience

Sessional Academic

Masters and Undergraduates

QUT, School of Information Systems, School of Computer Science

Responsibilities

Assisting the development of teaching materials and organisation of tutoring staff. Facilitating workshops and industry projects for students. Teaching duty for the following units (Sem 1):

- CAB402: Programming Paradigms;
- IFN711: MIT capstone project with industry partners;
- IFN582: Rapid Web Development with Databases;
- IFN619: Data Analytics for Strategic Decision Makers.

Research Assistant

QUT, Centre of Data Science

Assisting the future development of IUIH

My expertise in business process management (BPM) and process mining supported an regional not-for-profit health service, IUIH, for Aboriginal and Torres Strait Islander families of Australia. In this project, we investigated the future needs of their organisation through digital strategy and sound analysis of their as-is processes using both qualitative workshops and quantitative analysis of their information systems by:

- Mapping their as-is processes across several departments using BPMN;
- Validating their to-be processes with department leads;
- checking if data of their processes can be found within information systems for process mining efforts;
- delivering analysis around resource management and overall through put of handling incoming calls to their hotline.

Head Academic Tutor

QUT, School of Information Systems

Fundamentals of BPM

Working within the Process Science group at QUT, I taught students about the fundamentals of BPM. I both managed and ran teaching sessions for master students attending QUT. My active duties included:

- Facilitating tutorials for master students about business process management.
- Working with academic leads to produce high quality teaching content.Handling the day-to-day duties of handling students during semester.

2022 Research Assistant

QUT, School of Clinical Services

Fatalities in ICU wards

Working alongside academic clinicians and practitioners at the Royal Brisbane Women's Hospital in Brisbane, we set out to investigate an intensive care cohort of patients in a retrospective study of diseases. My duties consisted of:

- Working with clinicians to present a meaningful understanding of patient cohorts.
- Creating informative infographics about patient demographics.
- Evaluating risk assessment models used within retrospective studies.



Exogenous Data]

During my spare time, I find myself coding in the following pet projects:

A ProM plugin for process mining with exogenous data written in java [github.com/promworkbench/

- A python library for visualising process mining data structures [github.com/AdamBanham/vispm]
- A python library for pythonic data structures for process mining
- data structures for process mining [github.com/AdamBanham/koalas]

In my previous work in industry, I was a full-stack engineer and developed a datascience platform, see: [Petra Data Science - MAXTA]

2020

↑ 2017

2025

2024

2024

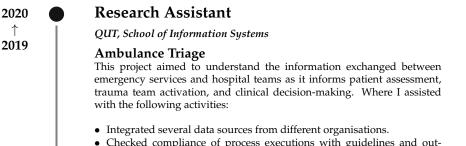
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2023

2023

2022

2021



- Checked compliance of process executions with guidelines and out-
- comes • For more info see: qut.to/xd67a

Publications

Discovering the Influence of Exogenous Data on **Decisions in Processes**

Adam Banham, Yannis Bertrand, Robert Andrews, Moe Thandar Wynn and Sander J.J. Leemans.

@ 46th International Conference on Application and Theory of Petri Nets and Concurrency, 2025

Comparing Conformance Checking for Decision Mining: An Axiomatic Approach

Adam Banham, Arthur H. M. ter Hofstede, Sander J. J. Leemans, Felix Mannhardt, Robert Andrews, Moe Thandar Wynn @ IEEE Access, Volume 12

xPM: Enhancing exogenous data visibility

Adam Banham, Sander J. J. Leemans, Moe Thandar Wynn, Robert Andrews, Kevin B. Laupland, Lucy Shinners @ Artificial Intelligence in Medicine, Volume 133

xPM: A Framework for Process Mining with Exogenous Data

Adam Banham, Sander J. J. Leemans, Moe Thandar Wynn, Robert Andrews @ ICPM Workshops 2021



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2025

2024

2022

2021

Awards/Grants

2024		Advanced Research Opportunities Program Fel- lowship
		Competitive grant awarded by RWTH Aachen, Aachen, Germany for a 3-month research stay.
2023		Certificate of Excellence, Outstanding Presenta- tion
		Doctoral Consortium, School of Information Systems, QUT, Brisbane.
2023	•	Best Sessional Accomplishment Award
	Ī	School of Information Systems, QUT, Brisbane.
2022	•	United Nations Hackathon - Best Regional Team Centre of Data Science, QUT see: research.qut.edu.au/qutcds/2023/02/10/un-hackathon/.
2022	•	HDR Accomplishment Award School of Information Systems, QUT, Brisbane.
2024 ↑ 2021		PhD Scholarship and Scholarship Top Up Australian Government Research Training Program; Centre of Data Science, QUT

021 ● ↑ 020	Honours Scholarship School of Information Systems, QUT		
	Teaching Duties		
2025 - • Sem 1	QUT - IFN711 = MIT Capstone Project with Industry Partners. Handling external partners and assisting students to meet expectations of partners through a short-term project.		
	Student Evaluation not avai	ilable	
2025 - • Sem 1	QUT - IFN582 * Rapid Web Development with Databases. Assisted with preparation of teaching materials and developing workshop exercises with leads.		
	Student Evaluation not avai	ilable	
2025 - • Sem 1	QUT - IFN619 Data Analytics for Strategic Decision Makers.		
	Student Evaluation not avai	ilable	
2025 - • Sem 1	QUT - CAB402 Programming Paradigms; Introducing Functional Program- ming Paradigms.		
	Student Evaluation not avai	ilable	
23- • m 2	QUT - IFN515 * Fundamentals of Business Process Management for M Students. Assisted with assignment development for a		
	Student Evaluation	80%	
2023- Sem 2	QUT - IAB201 ⁺ Modelling Techniques for Information Systems, assiste in marking, non-teaching role.	d only	
	Student Evaluation not avai	ilable	
2023 - • Sem 1	QUT - IFN515 * Fundamentals of Business Process Management for Master Students. Assisted in the development of course materials and moving to Canvas as learning platform.		
	Student Evaluation	88%	
19_	QUT - IFB104		
2019 - • Sem 2	Building IT Systems; First Year Undergraduate Con Science Unit.	nputer	
	Student Evaluation 4.3	3/5.0	
19- ● m1	QUT - IFB104 Building IT Systems; First Year Undergraduate Con Science Unit.	nputer	