Adam Banham

Researcher, PhD Candidate, BInfoTech(Hons), 16 Citations

Curriculum Vitae

Profile

My expertise lies in process mining, which involves analyzing data extracted from a business's internal systems and processes to gain insight into its operations. My research aligns with computer science and information systems, aiming to make technical contributions that facilitate business process management. Through data-driven approaches, I strive to eliminate human bias and avoid conjecture that may be introduced when relying on qualitative methods to derive process documentation for businesses. My research aims to provide businesses with a clear visual representation of their internal processes and decision-making. I have published articles in reputable publications and been a reviewer for various conferences within the BPM and process mining community, such as CAiSE and ICPM.

I excel in developing and maintaining large-scale software projects and reproducing intricate technical contributions from academia. Additionally, I am proficient with multiple programming languages and cloud providers for deploying services.

I have prepared my thesis for and I am currently awaiting external examination to confer the doctorate. My research was supported by Prof. Moe T. Wynn (QUT, Brisbane, AU), Dr. Robert Andrews (QUT, Brisbane, AU), and Prof. Sander J. J. Leemans (RWTH Aachen, Aachen, Germany). I am now looking for opportunities to continue my research and teaching career in academia.

Education

present
↑
2021

Doctor of Philosophy

Queensland University of Technology, Brisbane, Australia

Process Mining with Exogenous Data

The likely confirmation of my candidature is in Q4 of 2024.

This thesis is supported and supervised by Prof. Moe T Wynn (QUT), Dr Roberts Andrews (QUT), and Prof. Sander J. J. Leemans (RWTH Aachen). 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.

Contact

Email
adam_banham@hotmail.com

University
Queensland University of Technology, 2 George St, Brisbane, QLD 4000

Website
adambanham.io

ORCID
0000-0001-9912-8220

Scholar
scholar.google.com.au

Recent Publications

xPM: A Framework for Process Mining with Exogenous Data
publicly available here.

xPM: Enhancing Exogenous Data Visibility
publicly available here.

Comparing Conformance Checking for Decision Mining: An Axiomatic Approach
publicly available here.

Languages

English	Native Speaker
Python	Intermediate/Senior
Java	Intermediate
Javascript/HTML/CSS	Fluent
Rust	Novice

2020 ↑ 2017

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

2024 ↑ 2023

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.

2023 ↑ 2022

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 ↑ 2021

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.

Projects

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

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

2020 ↑ 2019

Research Assistant

QUT, School of Information Systems

Ambulance Triage

This project aimed to understand the information exchanged between emergency services and hospital teams as it informs patient assessment, trauma team activation, and clinical decision-making. Where I assisted with the following activities:

- Integrated several data sources from different organisations.
- Checked compliance of process executions with guidelines and outcomes.
- For more info see: `qut.to/xd67a`

Awards/Grants

2024

Advanced Research Opportunities Program Fellowship

Competitive grant awarded by RWTH Aachen, Aachen, Germany for a 3-month research stay.

2023

Certificate of Excellence, Outstanding Presentation

Doctoral Consortium, School of Information Systems, QUT, Brisbane.

2023

Best Sessional Accomplishment Award

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

2021 ↑ 2020

Honours Scholarship

School of Information Systems, QUT