



Nodes & Notes

THE OFFICIAL NEWSLETTER OF THE BNMA

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IN THIS ISSUE

01 President's Welcome

p.2

02 Dates for Your Diary

p.2

03 Member Spotlight

p.3

04 LinkedIn Roundup

p.4

05 Recent Publications

p.4

06 Meet a board member

p.5

07 Opinion: BN Futures

p.6

08 How to get in touch

p.7

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bnma .CO

*Your hub for Bayesian network
research, events, resources, and
community.*

LINKEDIN

[www.linkedin.com/in/bayesian-networks-
modelling-association/](http://www.linkedin.com/in/bayesian-networks-modelling-association/)

BECOME A MEMBER

bnma.co/membership

The BNMA aims to provide opportunities for
BN modellers to exchange ideas and
socialize, by organising conferences,
webinars and regular events.

01

FROM THE PRESIDENT A Welcome Note

Welcome to the 2026 BNMA newsletter, it's been an exciting start to the year.

Our focus this year is simple: helping you turn your Bayesian Network ideas into reality. Whether you're refining a model, building your first DAG, or tackling complex decision problems, we want BNMA to be a space where you can get practical support, share ideas, and connect with others doing similar work.

We've already seen this in action through our Bring Your Own Bayesian Network (BYOBN) sessions, where members from across five countries and six time zones came together to share their work. These sessions have sparked thoughtful discussions on everything from utility nodes and sub-model design to simplifying models and working effectively with subject matter experts. The feedback has been overwhelmingly positive, and we're excited to continue building this as a regular offering.

Behind the scenes, we've also strengthened the BNMA community, with a dedicated Engagement Committee leading our communications, events, and outreach. You'll start to see more regular updates, resources, and opportunities to get involved across our platforms.

None of this happens without the generosity of our members, whether presenting, mentoring, organising, or simply showing up and contributing to discussions. Thank you for being part of a growing, supportive, and globally connected BN community.

We're looking forward to what the rest of 2026 will bring.



Helen Mayfield
President 2026 • BNMA

Dr Helen Mayfield

Research Fellow at The University of Queensland

2026 PRESIDENT, BAYESIAN NETWORK MODELLING ASSOCIATION

02

UPCOMING

Dates for Your Diary

14th APRIL 2026, 4:30pm AEST

BNMA April Webinar Recap: Multilevel Bayesian Networks for Hierarchical Data

Bezalem Eshetu Yirdaw, University of South Africa

[Click here to watch the recording](#)

Want to understand how Bayesian networks can handle real-world multilevel data or data that change over time? Bezalem's recent talk gives you an introduction to Multilevel Bayesian Networks (MBNs) and how they extend traditional BN modelling.

Learn about:

- Core concepts behind MBNs
- Why they matter for complex datasets
- Practical applications with real examples
- A hands-on demo in R

Keep an eye out for *upcoming* BNMA events this year

Members BYOBN

Miscellaneous topics
Focused session on health and medicine

Webinar Series

Uncovering Hidden Causal Drivers of Crypto Markets, Rasoul Amirzadeh

Workshop with Bayesian Intelligence

Introduction to BNs
Machine learning with BN

We will keep you posted
<https://bnma.co/webinars-events/>

03

IN THE NETWORK

Member Spotlight



Bezalem Eshetu Yirdaw

College of Science Engineering & Technology,
Statistics Department,
University of South Africa

I am currently finalising my PhD in Statistics, where my research focuses on Multilevel Bayesian Networks (MBNs). My interest in this area developed from the recognition that Bayesian Networks are powerful tools for modeling complex dependencies, supporting prediction, and aiding decision-making under uncertainty. However, many real-world datasets, for example in areas such as public health, are hierarchical in nature, involving repeated measurements over time or clustered observations. Despite the wide applicability of Bayesian Networks, there are limited tools available to appropriately model such data structures.

This gap motivated me to explore Multilevel Bayesian Networks as part of my PhD research. The aim is to extend standard Bayesian Network methodology to account for both dependency structures and variation arising from the hierarchical structure of the data, providing a more realistic framework for analyzing correlated data.

My work has been recognized through awards and fellowships, including the L'Oréal-UNESCO For Women in Science Sub-Saharan Africa Award, the Schlumberger Foundation Faculty for the Future Fellowship, and travel support from the International Biometric Society, and others. These opportunities have supported both my research development and participation in international scientific communities.

I have been a member of the Bayesian Network Modelling Association since 2023, and the experience has been highly valuable. Through conferences, webinars, and community initiatives such as the "Bring Your Own Bayesian Network" (BYOBN) sessions, I have gained new insights and perspectives that continue to shape my work. I was also grateful to receive a BNMA travel grant for the 2026 conference, which supported my participation even though I attended virtually due to visa delays.

Prior to my PhD, I worked as a lecturer and researcher at three different universities in Ethiopia, where I developed my academic foundation and interest in statistical modelling.

I am grateful to be part of the BNMA community and look forward to contributing further to its activities and collaborations. I strongly encourage students, researchers, and practitioners to engage with BNMA and take advantage of the many opportunities it offers.

What is the most exciting thing on your horizon this year?

This year, I am excited to complete my PhD and explore extending the application of Bayesian Networks to population-based early warning models in public health.

What advice would you give to someone just starting out with BNs?

I recommend building a strong conceptual understanding of Bayesian Networks before focusing on software, while also practicing with real or simulated data and engaging with experts.

To find out more...

You can hear more about Beza and her work by contacting her at: bezt44@gmail.com

04

FIELD NEWS

LinkedIn Roundup

**Global Collaboration Through BYOBN Sessions**

Recent Bring Your Own Bayesian Network (BYOBN) sessions brought together researchers and practitioners from across the US, Europe, and Australia. These interactive sessions provided a collaborative space to present work, exchange ideas, and receive feedback on topics spanning healthcare, climate resilience, disease modelling, and environmental management. Keep your eyes on our LinkedIn page for the next sessions!

**Expanding BYOBN Opportunities in 2026**

Building on their success, BNMA has announced that BYOBN sessions will run throughout 2026. These member-only, small-group discussions offer a supportive environment to present projects at any stage of development, connect with experts, and learn from peers. Participation is free for members, with strong interest expected.

**Promoting Bayesian Thinking in Everyday Decision-Making**

BNMA continues to highlight the relevance of Bayesian reasoning in how we update beliefs and make decisions. A featured short video by David Spiegelhalter introduces the concept in an accessible way, showing how Bayesian ideas underpin reasoning in science, medicine, and everyday life.

**Strengthening Community Engagement and Leadership**

Yue Wu, Senior Research Fellow at The University of Sydney, is our 2026 Chair of BNMA's new Engagement Committee. The committee aims to expand connections across the community through webinars, workshops, and BYOBN sessions, while fostering inclusive communication of modelling approaches across diverse fields.

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05

RECENT & NOTABLE

Publications

Developing a general research framework for long COVID using causal modelling

Pérez Chacón, G., Mascaro, S., Estcourt, M. J., Phetsouphanh, C., Nicholson, A. E., Snelling, T., & Wu, Y · 2026

Communications Medicine · <http://www.nature.com/articles/s43856-026-01488-8>

Field of application: Medicine

Methods: DAG, dynamic BN, expert knowledge elicitation, qualitative parameterisation, simulation, reporting standards for BN modelling

Long COVID is an infection-associated chronic condition with uncertain evolution, leading to ambiguity in case definitions and various hypotheses about its pathophysiology. This study showed how a causal modelling framework can help address this challenge, in particular, how DAGs and BNs can be used to depict the existing understanding of long COVID, harmonise operational case definitions and hypothesised pathological mechanisms, and facilitate discussion among scientific researchers and medical experts.

Using expert elicitation to predict feral cat, *Felis catus*, responses to management

Dorph, A., Legge, S., Penman, TD., Cherubin, R., Elliot-Kerr, S., Marshall, E., Parkins, K., Ballard, GA · 2026

Pest Management Science - <https://scijournals.onlinelibrary.wiley.com/doi/pdf/10.1002/ps.70566>

Field of application: Animal ecology, pest management

Methods: Expert elicitation, Bayesian Networks for decision support

Unowned, unsocialised domestic cats living independently of human contact are a major driver of global wildlife declines. In Australia, a range of lethal management tools are available to control feral cat populations; however, their effectiveness is difficult to quantify empirically and is highly context dependent. We used structured expert elicitation to assess the effectiveness of feral cat management across 648 scenarios combining lethal control techniques, management decisions, and environmental conditions. These scenarios were analysed using a Bayesian Network to explicitly model the probabilistic relationships between management actions, contextual factors, and resulting reductions in feral cat populations. The Bayesian Network framework enabled integration of uncertainty and expert knowledge to compare management strategies and identify conditions under which lethal control is most likely to succeed. This approach provides practical, decision-support guidance for land managers seeking to improve the effectiveness and predictability of lethal feral cat control programs.

06

BEHIND THE NETWORK

Meet a Board Member



Annemarie Christopherson

BNMA Board Member

Earth Sciences, New Zealand

How long have you been involved with BNMA?

Since 2014

How did you get involved with the Association ?

I had “discovered” Bayesian networks (BNs) in the context of a project to develop risk assessment methods for carbon capture and storage and wanted to apply what I had learned to volcanic eruption forecasting when I saw the annual meeting announced for Rotorua. It was the first time the meeting was held in New Zealand. I attended both the workshop and the meeting and met a great bunch of people!

What does your role on the board involve?

Monthly meetings to discuss the affairs of BNMA; the odd moderation of one of our webinars; contributing to our activities such as the newsletter and the Bring Your Own BN sessions. In 2019 I was the president and enjoyed bringing the conference back to New Zealand.

What is one of the best parts about being involved with BNMA?

The multi-disciplinarity of our members

Describe yourself in three words:

Curious, grounded, open.

What small things always make your day better?

A cup of tea and a piece of good chocolate. Or a walk in nature, even just a round in the park across the road from my office.

What are you most excited for this year?

I will be attending a residential course in India to learn about Vedic astrology!

Meet the team: <https://bnma.co/about-us/>

Ideas for next-Gen modelling

Welcome to BN Futures, a new feature for the BNMA Newsletter. Here, we will briefly pose ideas for where Bayesian network modeling might take us next. Let's depart:

Probability vs likelihood vs odds – As we all should know, these are not synonymous terms, although they are often misused as synonyms in popular media.

Probability is the relative frequency of different outcomes, given some set of initial conditions. Likelihood is the relative frequency of different initial conditions, given some specified outcome. And odds, or more correctly odds ratio, is the probability of an outcome occurring divided by the probability of it not occurring (and there are variations of this).

In a BN model, think of it this way: probabilities are the rows in a CPT (conditional probability table), and likelihoods are the columns (and if the values in a column are normalized to [0, 100] then it becomes a normalized likelihood function); but ... odds do not even appear. And what is generally shown in the nodes of a BN model are just the probabilities of different outcome states.

But all three terms can be of tremendous value in a decision-advisory model! A decision-maker or policy-maker might need to know what might happen with some existing or potential set of conditions (probabilities), or what might have caused some undue outcome state (likelihoods), or even the relative degree of desirable and undesirable outcomes (odds). But today's BN models simply do not express all such calculations in an easily-viewable manner.

Thus, our challenge here is how to devise a BN modeling structure to clearly present these three calculations, as needed, as model outcome results? Can you think of a situation where the use of one of your models would benefit from displaying these three elements?

And, our challenge also includes ...
that henceforth we all use these three terms correctly!

Dr Bruce Marcot

Ph.D. Senior Research Scientist,
Emeritus Research Wildlife Biologist



CONTRIBUTE TO BN FUTURES

We welcome opinion pieces of ~500 words from all BNMA members on future directions, challenges, or opportunities in Bayesian network modelling. We would love to hear from you! Please send submissions to: contact@abnms.org

Connect with Us

Contact Us

GENERAL ENQUIRIES

info@bnma.co

WEBSITE

bnma.co

LINKEDIN

linkedin.com/in/bayesian-networks-modelling-association



Meet the engagement committee, experience ranging across multilevel models, elicitation, large language models, environment and healthcare.

<https://bnma.co/meet-the-engagement-team/>



BNMA's official LinkedIn account:

<https://www.linkedin.com/in/bayesian-networks-modelling-association/>



More BYOBN sessions in planning, expressions of interest are now open!

https://uniofqueensland.syd1.qualtrics.com/jfe/form/SV_9S7DzaQg9YWNI9Y

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