School of Mathematics and Statistics

UCD Centre for Network Science

rinn Artificial Intelligence

FUNDED PHD OPPORTUNITY

Unveiling latent networks from dependent events

Supervisor: **Dr Isabella Gollini**

STIPEND	DURATION	START	APPLY BY
€25,000 / year	**Up to 4 years**	**1 Sept 2027**	**8 Jan 2027**
Tax free; €3,500 travel	full-time	UCD Belfield, Dublin	Results by March 2027

The project

Many networks are not observed directly. Instead, we infer them from events, such as communications, interactions or investigations. But these events depend not only on the underlying relationships, but also on who has the opportunity to interact or be observed.

Consider a criminal network: investigating one person may reveal further connections, making those individuals more likely to be investigated next. Similarly, animal interactions depend on which animals are present and able to meet. In both cases, what we observe next depends on what we have already observed.

This creates a statistical challenge: **how can we distinguish the underlying network from the process through which it is observed?** Treating observed events as the true network, or assuming that unobserved relationships are missing at random, can lead to misleading conclusions.

This project will develop probabilistic models that jointly represent the underlying network and the observation process. By accounting for unequal and self-reinforcing opportunities to observe relationships, we aim to make more reliable inferences about network structure, distinguishing genuine evidence of a relationship from the lack of opportunity to observe it.

The candidate

The ideal candidate has a **solid background** in Statistics, Mathematics or Computer Science and a strong interest in probabilistic modelling, network data and computational methods. Prior experience with Bayesian inference, statistical computing or machine learning is an advantage.

More information

- **Informal enquiries** are welcome: isabella.gollini@ucd.ie
- PhD scholarships 2027 Competition
- Terms and conditions (PDF)

How to apply

Submit your application to the School Graduate Administrator via the online form:

Apply online →

Interested in a PhD in Statistics, particularly in networks and latent variable models?
Feel free to get in touch!
Other opportunities may also be available through alternative funding schemes, including Rinn AI.