

# LKYCIC Seminar Series

## Quantifying Uncertainty in Climate Science: Towards More Reliable Inference

### DATE AND TIME

15 May 2025,  
1 - 2 pm

### DR IDO NEVAT

Lead Investigator and Data Analyst,  
Cooling Singapore, TUM CREATE

### VENUE

Think Tank 19  
Building 2, Level 3 (2.304)

**SYNOPSIS** - How can we make better decisions in climate-sensitive domains like health and urban design, when the data we rely on is noisy and uncertain? In this talk, I will introduce a new statistical framework for estimating *Thermal Comfort Indices* (TCIs) from imperfect climate model outputs. This problem is challenging not only because climate models are inherently noisy, but also because climate variables exhibit complex, non-Gaussian dependencies. To tackle this, we use *statistical copula modelling within a hierarchical framework*, and develop an *importance sampling algorithm* that enables efficient inference where conventional methods fall short. I will demonstrate how this approach achieves significantly better accuracy—reducing mean squared error in TCI estimates—and show results using WRF climate simulations and the Heat Index model. The methodology has broad implications for data-driven policy in climate adaptation, public health, and urban resilience.



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**DR IDO NEVAT** received the B.Sc in Electrical Engineering from the Technion, Israel Institute of Technology in 1998, and the Ph.D. in Electrical Engineering from UNSW in 2010. From 2010 to 2013 he was a research fellow at the CSIRO in Sydney, From 2013 to 2016 Ido was the leader of the Statistical Modelling group at I2R. From 2017 to 2024 he was a Lead Investigator of the Cooling Singapore project at CREATE. Ido's research interests are machine learning, statistical modelling, statistical signal processing, wireless communications and sensor networks.



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