

2025 EECMS Summer Internship Application Form

Main Supervisor	Dr Mengbin Ye
Other supervisors (if applicable)	Dr Tony Mathew
Project Title	Modelling the Formation and Evolution of Common Ground Using a Novel Agent-Based Model
Student location(s) for the project	B314, at a desk to be arranged by Centre for Optimisation and Decision Science
Duration of project	Eight weeks, 6 th Jan to 3 rd March
Project Description	<p>This project aims to explore how common ground forms and evolves through human social interaction. Common ground is a set of mutually accepted information between people and plays an integral role in communication. Information can only be successfully communicated once a common ground is established between two people. For example, it is not possible to have a meaningful conversation about Daisy Buchanan with someone who has not read <i>The Great Gatsby</i>. In this way, common ground is the precondition to the spread of information. Therefore, understanding the formation and evolution of common ground among people can help us map out how information spreads.</p> <p>We approach this objective using agent-based modelling, which allows us to simulate repeated social interactions between groups of people. Our novel model can implement different behavioural characteristics of people and various kinds of social networks (e.g., small and large groups, social media). This model can help us understand/predict the speed/breadth of information spread based on behavioural and network characteristics.</p> <p>A key application context is to understand how misinformation spreads via social media, since a common ground is required for any meaningful information to spread. Thus, potential end-users of our model include Defence Science and Technology Group (DSTG) and other members of the Australian National Intelligence Community (NIC), who can use it to better understand emergent threats in the Information Environment.</p>