

An Indian-Australian research partnership



Industry sponsored project by Infosys

## **Project title Robust schedule generation for task graphs and long running data-driven workflow systems**

**Project number:** IMURA0176

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### **Research Academy theme/s**

List only the research academy theme/s that is relevant to the project

1. **Advanced computational engineering, simulation and manufacture**
2. Infrastructure engineering
3. Clean energy
4. Water
5. Nanotechnology
6. Biotechnology and stem cell research

### **The research problem**

Workflows form a vital technology for large scale scientific collaboration amongst different scientist belonging to different administrative domains. A typical characteristic of such workflows are that they are increasingly data-driven and long running. Further, the execution environment for these long-running data-driven workflows is often compute grids. Compute grids are cyber-infrastructures formed by inter-connecting commodity servers with commodity networks. Reliability is a key concern in such infrastructures. In the back-drop of these concerns, it is therefore necessary to devise robust scheduling and data placement strategies for such workflows.

### **Project aims**

The work will explore novel and robust data-placement and schedule generation strategies in the backdrop of compute grids where reliability is a key concern. The intent of the work is also to investigate the advantages of streaming (pipeline scheduling) in the context of the above.