PROJECT MANAGEMENT RESEARCH PROJECTS - SUMMER 2023-24

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PROJECT MANAGEMENT RESEARCH PROJECTS

PROJ2023-24/1 AI-based approach for centrality estimation in bipartite networks
Supervisors: Dr Shahadat Uddin and Prof Jinman Kim

Eligibility:
1. Simulation and/or computational modelling (Machine learning and preferably Deep learning)
2. Strong expertise in Python or a relevant programming language
3. Strong analytical minded

Project Description:
Extracting node-level network features is challenging in the training-test split for graph-based AI classifications, especially for large ones projected from a bipartite network. This project aims to develop AI-based models to estimate node-level features for a newly entrant node into a bipartite network without conducting a network-level analysis. This project will use open-access network data. The expected outcome of this project is predictive models for node centrality estimation, which will significantly reduce the computational complexity of any deep learning environment requiring node-level network attributes as input.

Requirement to be on campus: Yes *dependent on government’s health advice.

PROJ2023-24/2 NLP (Natural Language Processing) to understand the landscape of Project Management research
Supervisors: Dr Shahadat Uddin and Prof Jinman Kim

Eligibility: Natural language processing and machine learning, Strong expertise in Python or a relevant programming language, Strong analytical minded

Project Description:
This project will employ suitable NLP methods related to topic modelling and word association (e.g., word2vec and BERT) to explore the landscape of Project Management (PM) research. For this purpose, it will primarily use bibliometric metadata from multiple sources. The project is expected to outline the PM research trend — quantitatively, linguistically, and visually.

Requirement to be on campus: Yes *dependent on government’s health advice.

PROJ2023-24/3 NLP (Natural Language Processing) to understand industry demands of essential skillset from job adverts
Supervisor: Dr Shahadat Uddin and Dr Louis Taborda

Eligibility:
• Natural language processing and machine learning
• Strong expertise in Python or a relevant programming language
• Strong analytical minded
**Project Description:**
This project will employ suitable NLP methods related to text mining (e.g., topic modelling, word2vec, BERT and TF-IDF) to understand the industry demands of essential project management (PM)-related skills from job advertisements. For this purpose, it will use job adverts from Seek (www.seek.com.au). The potential candidate will have the data ready for exploration. The project is expected to outline high-demand skillsets that industries seek for their available PM-related positions.

**Requirement to be on campus:** Yes *dependent on government’s health advice.

**PROJ2023-24/4 Developing a Social Network-Identity Model for Stakeholder Engagement in Infrastructure Projects using Netnography:**

**Supervisor:** A/Prof. Ken Chung

**Eligibility:** Distinction average, strong data analytics skills (e.g. coding in Matlab and/or Python, R or other statistical packages) and written communication skills.

**Project Description:**
Public infrastructure megaprojects are complex and often met with opposition. This requires meaningful and effective stakeholder engagement. In this research, we seek to understand community voice and sentiment (emotion-work) with regards to infrastructure projects (such as roads development and building an aerotropolis) through the use of social identity theory, social network analysis and social media data analysis.

**Requirement to be on campus:** No

**PROJ2023-24/5 Collaboration in Engineering Projects**

**Supervisors:** Jennifer Whyte, Elahe Gharouni Jafari

**Eligibility:**

**Project Description:**
This project involves working with the research team in the John Grill Institute for Project Leadership on collaboration in engineering projects. We anticipate two activities:

1. To conduct a structured literature search, using research databases to identify last 10 years of research on collaboration in engineering projects, using keywords. To extract themes and use tools such as Vosviewer to show connections between literature, clarifying the shape of the literature.

2. To understand the real-world challenges of engineering collaboration working with qualitative data collected from the field [subject to ethics approval]. Coding this data in relation to the theme in the literature on collaboration, and related concepts of coordination, cooperation, and system integration, with particular interest in how digital technologies change engineering collaboration practice.

We expect the student to be a member of the research team through the vacation, engaging in day-to-day activities such as lunches and research meetings.

**Requirement to be on campus:** Yes *dependent on government’s health advice.