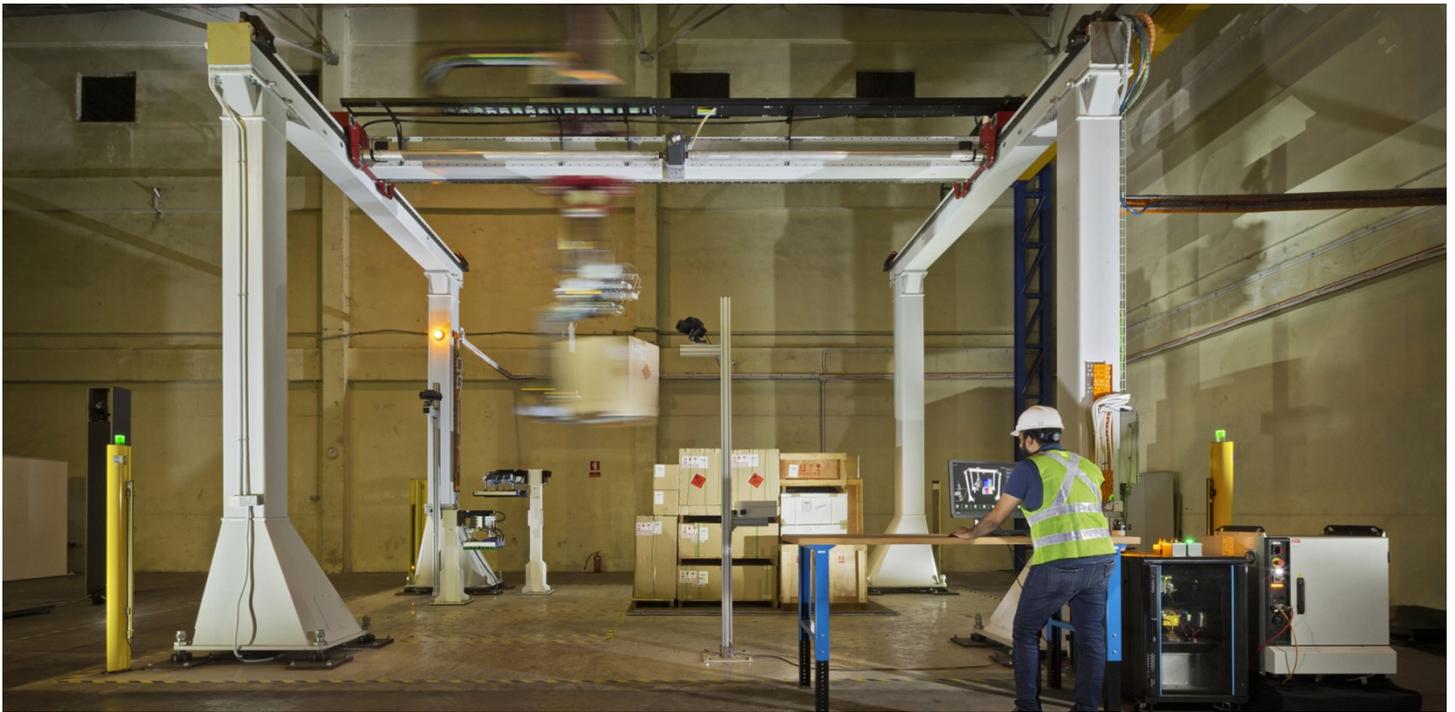


Master Thesis – Mathematical Programming Models and Optimization for Air Cargo Processes

Availability: February 2019, Singapore

Contact: Dr. Suraj Nair (suraj.nair@tum-create.edu.sg)



Introduction

TUMCREATE is a leading research institute set up by the Technical University of Munich, Germany in collaboration with the National Research Foundation (NRF) of Singapore. TUMCREATE has received funding and support for the SPEEDCARGO project from the Civil Aviation Authority of Singapore (CAAS) and the NRF to develop automation solutions that will transform the air freight logistics sector. TUMCREATE's SPEEDCARGO solution is the world's first AI-powered robotic system for improving the productivity, efficiency and security of air cargo processes.

SPEEDCARGO is seeking technical experts with a passion for creating world class products, and a willingness to work in a fast paced, quality-obsessed, multi-cultural global environment. On completion, the project will spin-off as a start-up with members of the project team having the option to join the start-up with benefits that include attractive Employee Stock Ownership/Option Plans.

Apply now if you are interested in working on cutting edge technologies, changing the world with your work and joining a dynamic start-up team!

More details on the project:

<https://www.speedcargo.sg/>

ABOUT TUM CREATE

TUM CREATE innovates. We are developing cutting-edge electric vehicle technologies and pioneering the *Ultimate Public Transport System* concepts for the growing transport and sustainability challenges in fast-growing tropical megacities. Germany's *Technical University of Munich* (TUM) and Singapore's *Nanyang Technological University* (NTU) — two world-leading engineering universities — have come together to collaborate on this ambitious joint research programme. It is funded by Singapore's National Research Foundation.

Background

The SPEEDCARGO team has already developed technology to enhance the productivity of certain critical parts of the airfreight cargo process. Through this point of entry, we have managed to get an overview of the entire airfreight cargo ecosystem, which consists of multiple stakeholders, processes and data representation. There is a huge potential of implementing optimization methods to improve the productivity and transparency within the industry.

This master thesis focuses on model building, optimization and prototyping of software applications for the airfreight cargo process. The work will be within an emerging deep-tech startup working towards commercialization of SPEEDCARGO.

Objective & tasks

Successful candidate will be working primarily to build, optimize mathematical programming models and develop prototype software applications for real-world airfreight cargo processes. The candidate will also work within a team of software engineers on transforming prototypes into robust industrial software systems.

Mandatory Requirements

1. Master/Bachelor Degree in Computer Science/Applied Mathematics from a reputed university.
2. Strong knowledge of fundamentals in data structures and algorithm analysis.
3. Proficient in one or more programming languages such as C/C++, Matlab, Java, Python, R, etc.
4. Familiar with mathematical programming models and combinatorial optimization methods.
5. Exposure to operations research in a real-world environment.

What we expect from you

- Exposure to operations research in a real-world environment.
- Familiar with optimization/constraints programming tools such as CPLEX, Gurobi, etc.
- Knowledge of machine learning methods.
- Experience in working with database systems.
- Ability to work independently as well as in a team environment.

What we offer you

- An international and multidisciplinary working environment
- Opportunity to work on deep-tech robotic system
- Challenging tasks with real-life relevance

PLEASE NOTE THAT ONLY SHORTLISTED CANDIDATES WILL BE CONTACTED

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