MONASH
ENGINEERING

MONASH University

Faculty of Engineering
Summer Research Program 2023-2024

Project Title: Multiple rocket exhaust plumes interacting with launch pad structures

Supervisor(s): Daniel Edgington-Mitchell

Department: Mechanical and Aerospace

Email: Daniel.mitchell@monash.edu

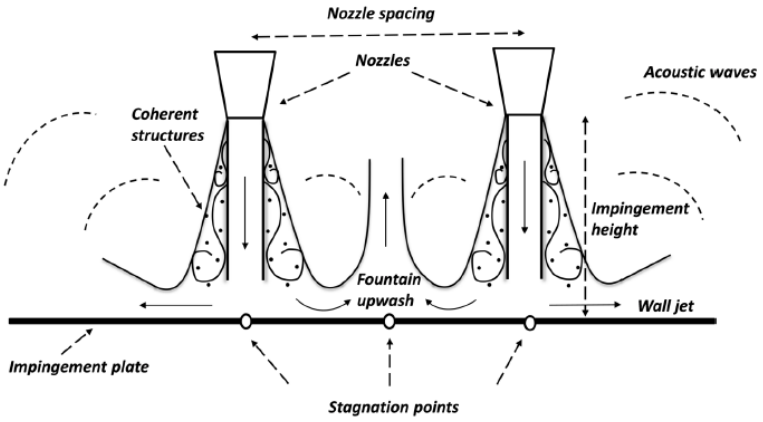
Website profile of project supervisor: Daniel.edgington-mitchell.com

Objective

In this project we will study the complex dynamics of multiple supersonic jets impinging on a nearby surface, analogous to the plume of a space-launch system interacting with the launch pad.

Project Details

The acoustic loading generated during rocket launch is a major concern for launch-system safety. During launch, this is often dealt with through the use of “rainbird” water systems or flame trenches. Such systems are however, not available on the pads used to land re-usable systems; rockets thus experience two very different acoustic environments during their lifecycle.



In this project we will examine a cluster of supersonic jets impinging on surfaces of varying geometry, using ultra-high-speed schlieren and spectral and modal decomposition techniques.

Prerequisites

80+ WAM and an interest in postgraduate study.

Additional Information

Please contact me to discuss before applying for this project.