

Jet-flap interaction tones

Apologies for the short description, I am quite unwell and just trying to get something posted. Please contact me at Daniel.mitchell@monash.edu to discuss if you have any questions.

The project will involve trying to visualize and model the non-linear modes that are produced when a Mach 0.9 jet is grazed by a plate, as happens when flaps are deployed during takeoff. Our collaborators in the CNRS are building complex models for linear and non-linear resonance to describe this phenomenon, and we will produce a set of companion data using ultra-high-speed schlieren to pair with their models.

In this project you would design a modular jet-flap system, install it in our Gas Jet Facility that it set up for schlieren visualization, and perform modal decomposition on the data.

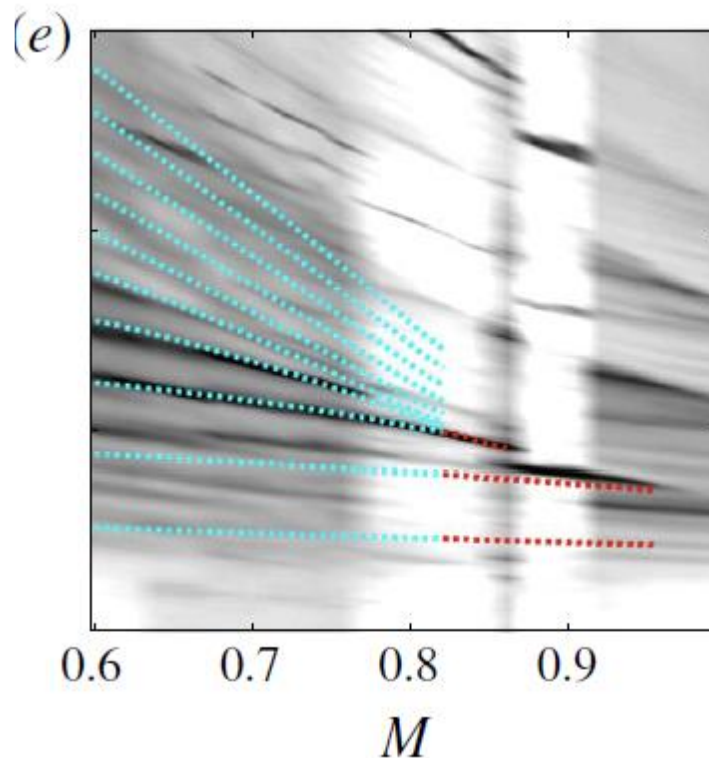


Figure 1: Acoustic tones (grayscale) and model predictions for jet-flap interaction tones (Jordan et al 2018)

To undertake this project you should:

1. Be contacting me before applying to discuss.
2. Not be scared of loud noises (the jet is loud).
3. Have an interest in pursuing postgraduate study in aerospace.