**UNSW School of Aviation S2-2014 Colloquium Series**

*Location:* School of Aviation, Old Main Building, Level 2, Room 221  
*Time:* 1100 - 1200  
*Date:* Fortnightly  
*Coffee and Tea available prior to each presentation*

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Effective communication between pilot and air traffic control (ATC) is essential for safe flight.
For non-native English speakers (ESL), this is potentially more challenging.
Likewise for less experienced pilots (potentially more challenging).
The interaction between communication and factors such as: ‘speech rate’, ‘items per transmission’, ‘radio congestion’ and ‘pilot workload’ remains unknown.
The present study tested communication performance under the above four conditions.
The results revealed that effective communication is more challenging in situations of: faster ATC speech rate, higher amount of information, and high workload, particularly for ESL speakers.
Past Presentations

10 September 2014 – Noise and Cognitive Performance (Brett Molesworth).

Highlights
• Noise is a moderating factor that is known to affect performance.
• Present research investigates short-term exposure effects of noise.
• Four performance measures investigated: recognition memory, working memory, vigilance and reaction time.
• Both native English speakers and non-native English speakers participated.
• Recognition memory appeared to be most vulnerable to noise.
• Noise was found to be more detrimental to non-native English speakers.
• Results have important implications for aviation.

24 September 2014 – Potential Conflict Detection and Resolution using Speed Control (David Rey).

Highlights
• Air traffic volume increases yearly and generates more and more potential air conflicts.
• Air conflicts are mostly handled by Air Traffic Controllers and may increase their workload.
• Speed control can be used to resolve potential air conflicts.
• Subliminal Speed Control can be used to softly adjust aircraft trajectories and reduce controllers' workload.
• Developed a mathematical optimization model to solve this conflict resolution problem.
• Tested and validated the model using realistic air traffic scenarios over the European airspace.
• Results show that the model is able to significantly to reduce the impact of conflicts and improve traffic conditions.