

**TRACK 5: RSAF INDIGENOUS PROJECTS****“DATA ANALYTICS FOR UAV”**

BY  
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**ABSTRACT**

Heron 1 UAV telemetry contains huge volume of data that can be analysed to identify anomalous parameters for troubleshooting. However, the full potential of the data has yet to be harnessed. The existing OEM telemetry software restricts the extent of data visualization that can be performed. In addition, there are hundreds of parameters within the software that can be analysed. The user must be able to determine the relevant parameters to be analysed and sense-make the relationships between the parameters.

811 SQN has developed a diagnostic tool built on Microsoft Power BI. Using Microsoft Power BI, we are able to automate anomaly detection and enhanced data visualisation. Our unit's experience in UAV systems helped in developing dashboards for the individual aircraft systems such as engine, datalink and flight control systems. In addition, it allows us to overcome restrictions in the OEM software, allowing for non-time based graphs to be plotted and for multiple parameters to be superimposed into one graph. In addition, with the use of unsupervised machine learning, we are working on the development of prognostics capabilities for selected engine sensors to allow for pre-emptive replacement of engine components before failure in flight.

**BIOGRAPHY OF SPEAKER**

ME4 Adrian Tan is an Air Force Engineer (AFE) by vocation. He graduated with Bachelor of Engineering (Aerospace Engineering), First Class Honours from Nanyang Technological University in 2013. He is currently holding on to the appointment of Officer Commanding (OC) Propulsion Flight, 811 SQN. He oversees the provision of Operational Engineering support to the UAV engine fleets. He was previously a Staff Officer in Propulsion Centre, Air Engineering and Logistics Department (AELD).