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Keynote / Dr. Wenyi Wang - Aerospace Division, Defense Science and Technology Group, Australia

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Title:

Tackling a challenging problem: diagnosis of helicopter planetary gear rim crack – with a historical reflection of DSTG’s gearbox diagnostics work.

Abstract:

This keynote will address a worldwide challenging problem - finding solutions to detecting the planetary gear rim cracking in helicopter main rotor gearboxes. This failure mode caused two fatal helicopter crashes in recent years, and there is no reliable means of detecting the gear fault. Defence Science and Technology Group (DSTG) generated a dataset in an accelerated rim crack propagation test with the Bell-206B helicopter main gearbox as the test article, and shared the dataset with the international HUMS/PHM community. With this dataset, DSTG conducted a benchmark analysis using the conventional signal processing and machine learning techniques. This keynote will present the results of this analysis with a historical reflection of DSTG’s work of gearbox diagnostics in the last four decades.

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