

1. **Research Title:** Robust Anomaly Detection Algorithm for Identifying Multi-Function Radar's Pattern Change
2. **Individual Sponsor:**

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3. **Academic Area/Field and Education Level**
Electrical Engineering, Computer Engineering and Computer Science
(MS or PhD level)
4. **Objectives:** The object of this research project is to develop a robust algorithm to detect a multi-function radar's behavior pattern change at the presence of errors at the receiver.
5. **Description:** With rapid advances of software defined radar technology, a modern radar's waveform diversity and search/track patterns can be rapidly changed thus making successful detection and unambiguous tracking difficult. Therefore, it is crucial to detect the change of a radar's "behavior patterns" when it occurs. Moreover, the low probability of intercept (LPI) radar capabilities further complicate this task. To address this issue, this project will be dedicated to the development of robust anomaly detection algorithm(s) for multi-function radars. Specific cases include where the detected/intercepted radar signal might be misclassified and/or some radar waveforms or transmitted signals might be missed by a receiver. The developed algorithm is expected to accurately detect the change of radar behavior and report the confidence level about its determination.
6. **Research Classification/Restrictions:** Unclassified/US Citizens [No foreign national students]
7. **Eligible Research Institutions:** Dayton Associated Graduate Student Innovators (DAGSI)