

## Attachment 1 – DAGSI Research Topic Template

**NOTE: Under the Cooperative Agreement, Technical Directorates have three options for topics. First, a topic can strictly be considered in the pool for the state allocation of funding. DAGSI will work across the TDs for this allocation. Second, the TD can be prepared to be a funding partner with the State of Ohio. This would include: providing additional funds to support additional recipients of a topic, or expand the proposers team to include additional members on a topic. Third, the TD may elect to fully fund a topic not selected for State of Ohio funding or to pursue University teams outside the State of Ohio. Contact [Terry.Cunningham.2@us.af.mil](mailto:Terry.Cunningham.2@us.af.mil) for questions**

1. **Research Title:** Develop Analogical Mappings for Multi-Sensor Exploitation
2. **Individual Sponsor:**

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3. **Academic Area/Field and Education Level**

Electrical Engineering (MS or PhD level)  
Computer Science (MS or PhD level)

4. **Objectives:** Employ mappings for analogical reasoning across multiple sensor sources
5. **Description:** There is a continual push to make Artificial Intelligence (AI) as human-like as possible; however, this has proven to be a difficult task. One ability that biological intelligence has that AI does not is the ability to quickly apply knowledge from one source to another. One method is to learn through the use of analogies. Analogical reasoning (AR) has been demonstrated to learn within a single type of data for instance developing analogies within color images. This project would advance the state of the art in the application of AR by developing analogies between different types of remotely sensed data. The goal would be to apply AR techniques and reasoning techniques to remotely sensed data from LiDAR and to remotely sensed data in Synthetic Aperture Radar (SAR).
6. **Research Classification/Restrictions:** unclassified
7. **Eligible Research Institutions:** Ohio State, Ohio University, University of Cincinnati, Shawnee State, Miami University

**NOTE: Topics submitted to DAGSI must be approved for public release. Need PA Approval # AFRL-2023-3901**