

FY22/23 DAGSI Research Topic

1. **Research Title:** Gamification to Advance Reinforcement Learning
2. **Individual Sponsor:**

Dr. Trevor Bihl, AFRL/RYPAR
AFRL/RYPAR Bldg 620
2241 Avionics Circle
WPAFB, OH 45433-7333
Trevor.Bihl.2@us.af.mil

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

Electrical Engineering (MS or PhD level)
Computer Science (MS or PhD level)
Biomedical, Industrial and Human Factors Engineering (MS or PhD level)

4. **Objectives:** Reinforcement Learning (RL) research and development (R&D) advancement through crowdsourced gamification
5. **Description:** Develop approach to Reinforcement Learning (RL) research and development (R&D) advances through crowdsourced gamification. RL approaches often require large amounts of data to train and gamification provides one method of providing such data where developers and users readily provide data. Despite the obvious synergies, gamification is not yet integrated to advance RL research. This is potentially due to the difficulties of satisfying all three parties (developers, players, RL researchers). This combines a general game website, data collection/use, RL toolkit for processing, training time for RL algorithms, and leveraging data from human-player expertise to further improve RL.
6. **Research Classification/Restrictions:** unclassified
7. **Eligible Research Institutions:** Ohio State, Wright State, Ohio University, University of Cincinnati

PA Approval #: AFRL-2021-1674