

Intermittent Learning Framework for Smart and Efficient Cyber-Physical Autonomy

Challenge:

 Develop a framework for behaviorism-based reinforcement learning for CPS

• Smart autonomy under limited bandwidth usage, resilience and attack mitigation

Solution:

- Intermittent update following the algorithms principles of operand conditioning, namely fixed/variable interval and ratio schedules
- Meta-learning method for intermittent deception
- Intermittent optimal backstepping
- Applications robotics to through intermittent motion planning

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Scientific Impact:

• Efficient use of resources while adapting optimally to changing and adversarial environments

Broader Impact:

 Revolutionize use of learning mechanisms in CPS

•Beyond the computer science, robotics and computational intelligence communities, can provide engineering perspective to behavioral psychology

 Developed 3 new graduate level courses on relevant topic

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