

## **Cooperative Autonomous Robot Exploration**

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A collaborative robot system is a collection of robots that work together to complete an unmanned mission. By eliminating the need for human controllers, errors can be minimized, consequently resulting in greater efficiency. CARE (Cooperative Autonomous Robot Exploration) aims to extend on existing robotic systems, such as NASA's Perseverance and Ingenuity Helicopter, with the goal of effectively exploring uncharted areas in GPS denied environments. Using a rover and a drone equipped with Ultra Wide Band technology, the two robots will communicate their location relative to each other to effectively explore areas of high interest. The drone will locate these areas of interest, then relay the information back to the rover, and finally navigate to the area, avoiding obstacles. CARE aims to prove that a cooperative system such as this is possible and is a cheaper solution to autonomous exploration.