Leveraging High-Altitude Balloons and Mobile Robotics for Real- Time Wildfire Detection and Monitoring Systems

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- **Networks of sensing agents**: high altitude balloons, drones, ground-based sensors

- **Mobile infrastructure** adapts to environment changes

- Distributed estimation algorithms provide **fault-tolerance** and **lower computational demand** on each agent

- **Intelligent inference** at the edge enables early-warnings and real-time monitoring

HAB agents can act as high-altitude pseudo-satellites for monitoring & drone deployment

stratosphere

Drones cooperate to satisfy mission tasks in a dynamic environment, being equipped with computing capabilities that allow multimodal perception and intelligent inference at the edge

troposphere

low-altitude

ground-level

networks of ground sensors provide real-time data for risk assessment

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