



Machine Learning for Autonomous Drones Operations

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Changing the World's Energy Future

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Instrumentation, Control, and Data Science, NST, INL

Machine Learning for Autonomous Drones Operations

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Drones Uses in a Nuclear Power Plant

- Operator rounds
- Security rounds
- Radiation Monitoring
- Inspections
- Surveys
- Monitoring

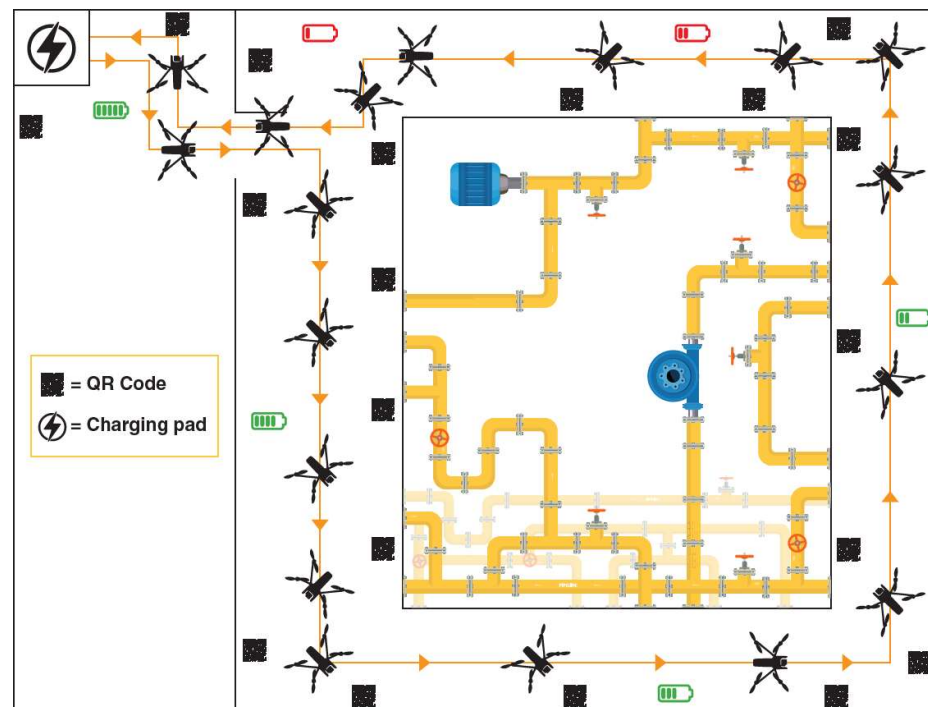
Drones can:

- eliminate/reduce the human role and save cost.
- Increase activities frequency
- Increase fidelity (broader sensory perspective)
- reach hazardous locations with less precautions

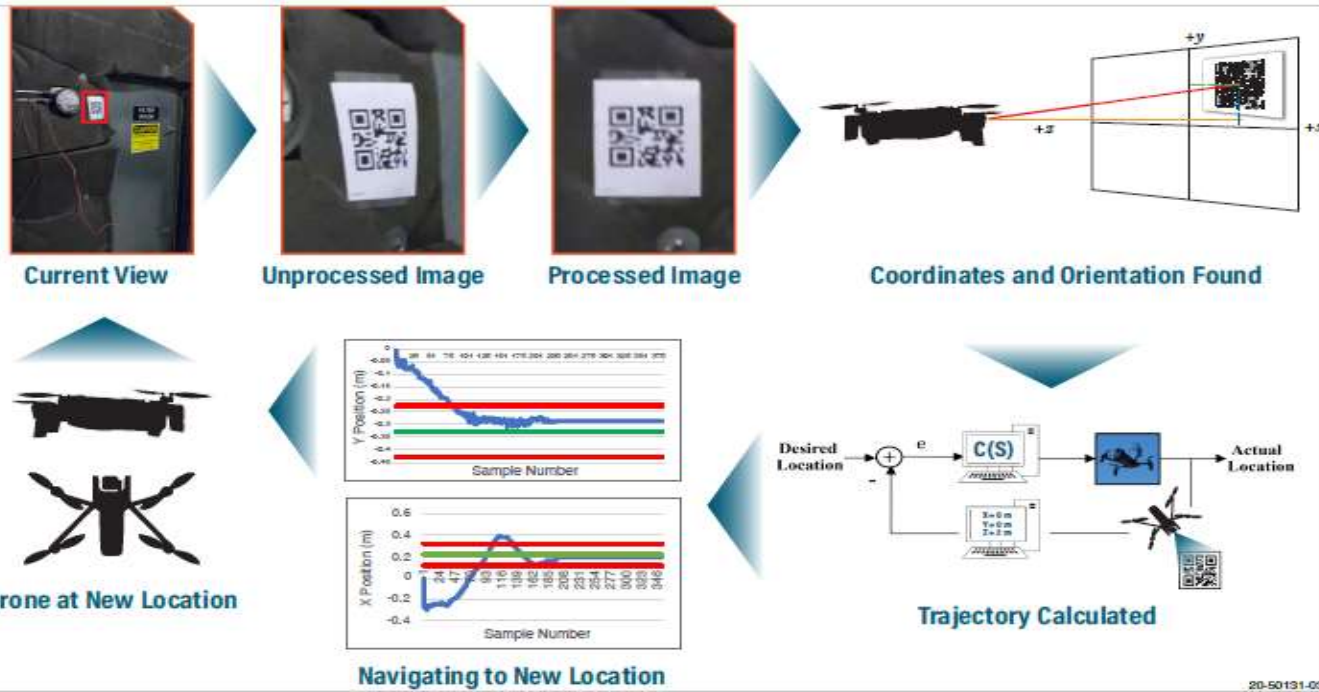


Drone Uses can Drive ML/AI Development

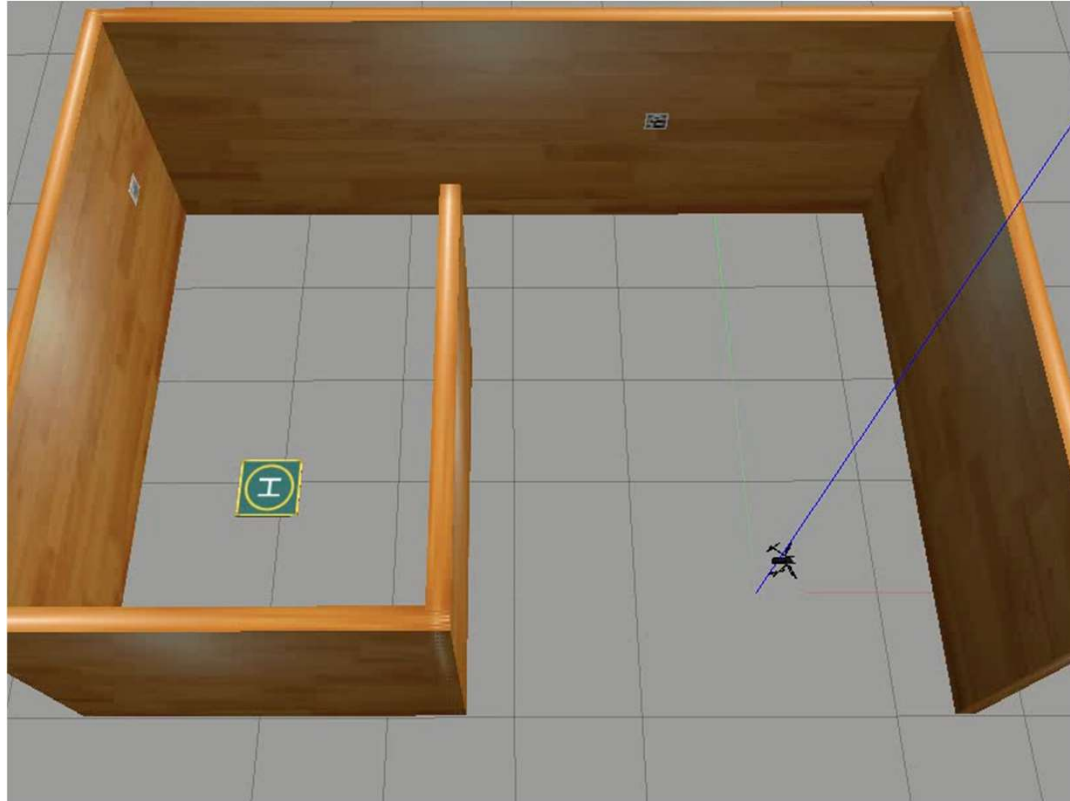
- ML/AI can enable drones to perform visual functions:
 - Classifying objects (e.g. gauges)
 - Recognizing events (e.g. fire, leak, etc.)
 - Identifying objects (people, ladder, etc.)
- ML/AI can enable drone to autonomously navigate in an environment.
 - Route Operable Unmanned Navigation of Drones (ROUNDs)



Route Operable Unmanned Navigation of Drones (ROUNDS)



Current Status



Questions?



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