CAREER: Robots that Plan Interactions, Come and Go, and Build Trust

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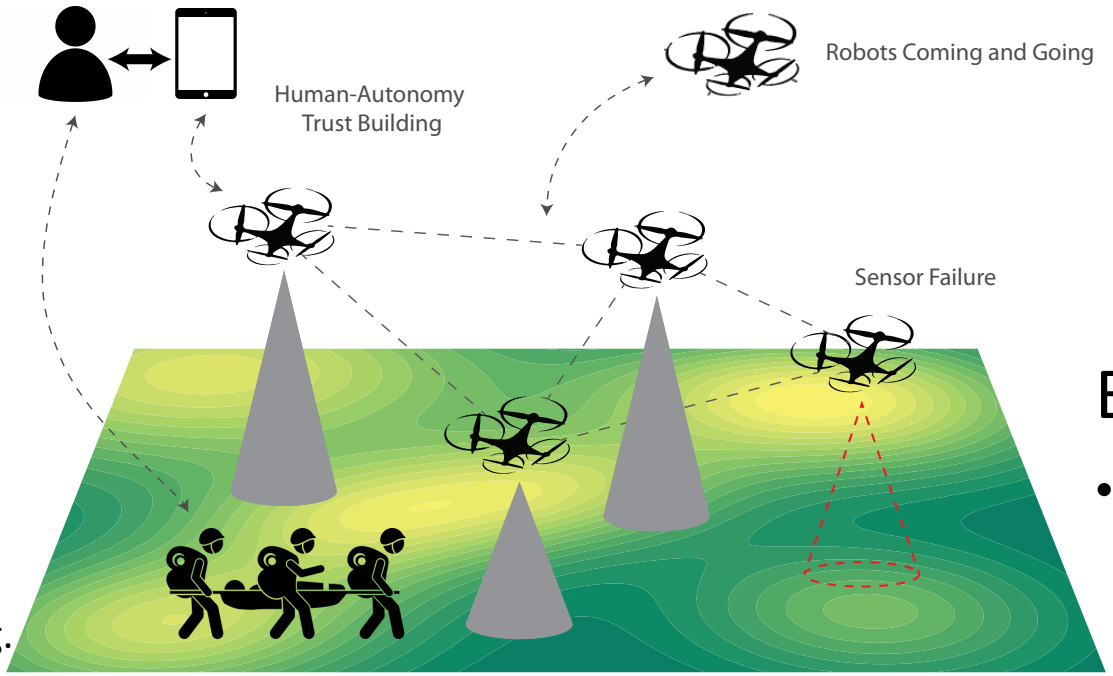
Challenge

- Enabling robots to plan their interactions intelligently, gracefully enter and exit systems, and participate in trustful decision-making processes with humans.

Solution

- Independence systems for computing robot interaction.
- Combinatorial optimization for planning robots entering/exiting.
- Trust-building based on multi-armed bandits.



Project overview and application:
Multi-human multi-robot teams building trust in search and rescue.

Scientific Impact

- Systems whose composition and interactions change over time while remaining resilient to such changes and building trust.

Broader Impact

- Trustworthy interactions that adapt over time are critical for effective human-autonomy teams, across a wide range of applications.

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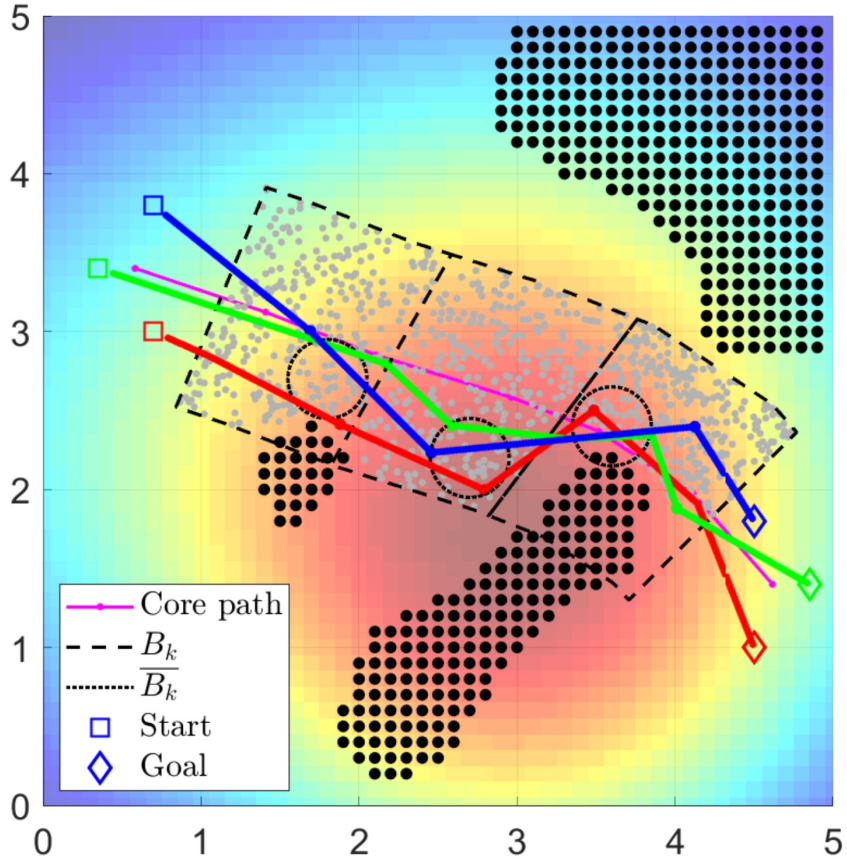
Overview of Current Results:



Interaction planning with structural constraints over time.

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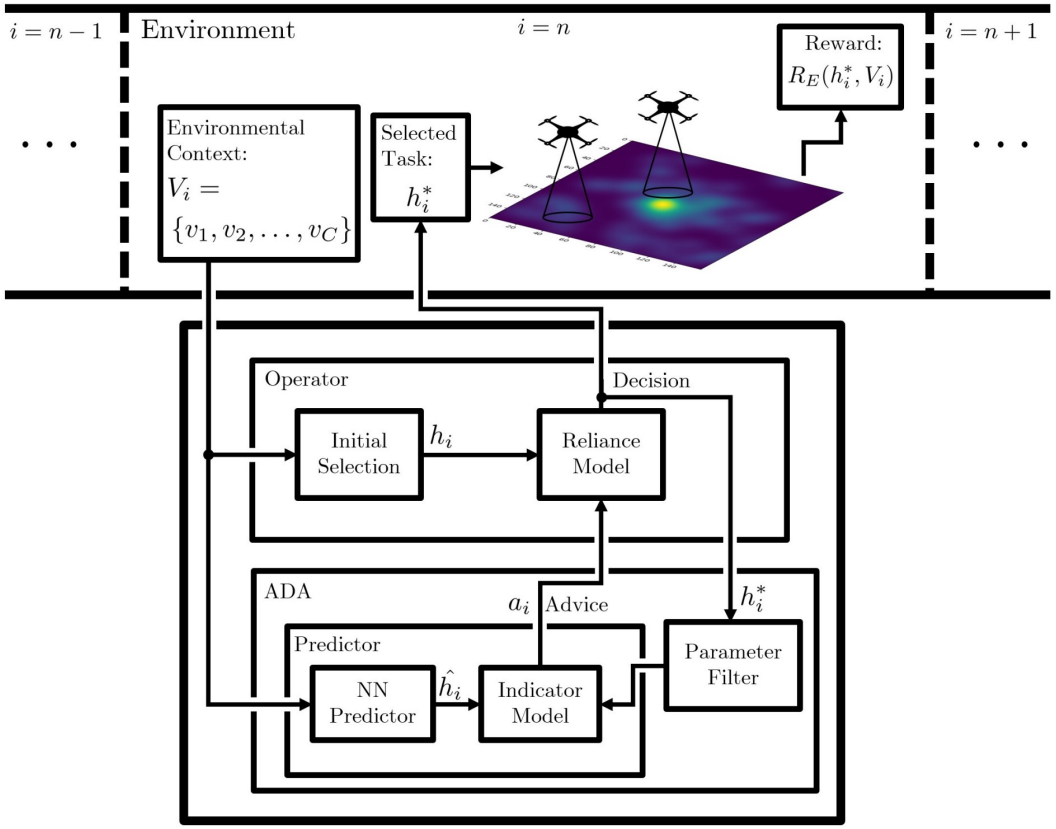

Autonomous decision aid pipeline.

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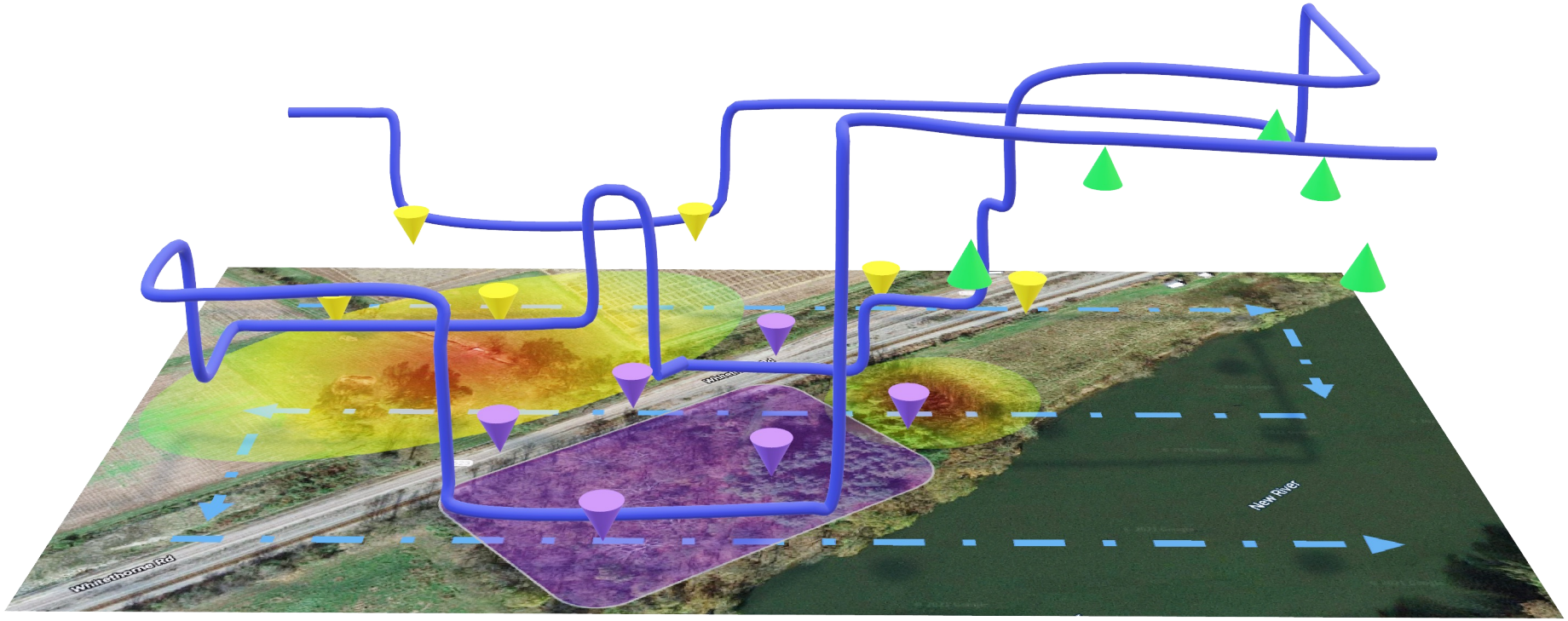

Trust in aerial search paths.