CPS: Medium: Information-Based Control of Cyber-Physical Systems Operating in Uncertain Environments

Award 1837515, 9/15/2018
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Challenge:

How should autonomy use control to not just reduce uncertainty, but to manage the complexity of decision-making in the context of uncertainty?

Solution:

- Information-based control provides coverage with respect to unknown future behavior
- Combines policy-based and model-based reasoning

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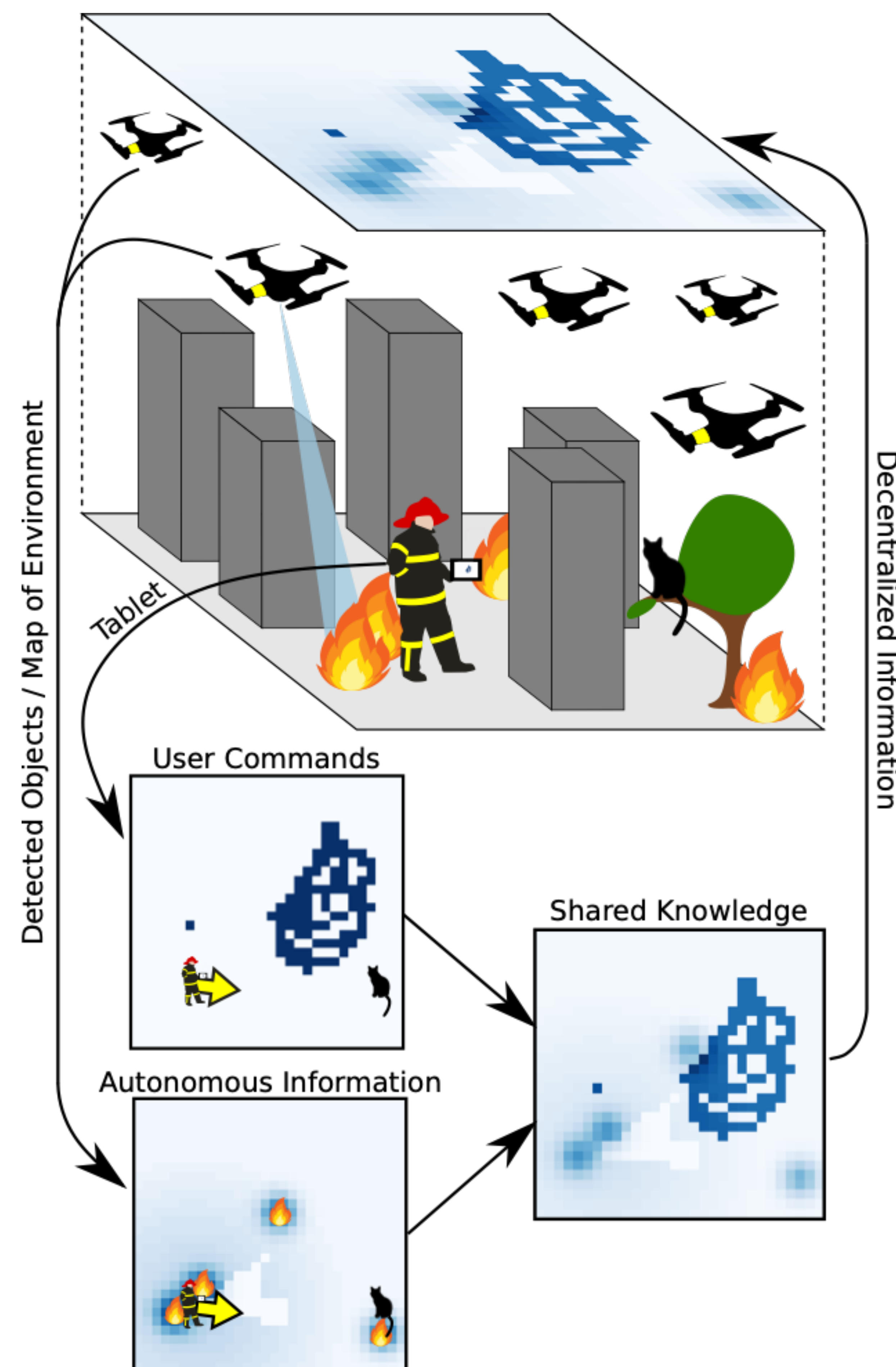
Autonomy searches an environment to help an operator under time pressure

Scientific Impact:

Control synthesis tools improve machine learning techniques, making learned models robust and adaptable

Broader Impact:

- Automates finding relevant information for adaptation
- Relevant to technologies 'in the wild' where the environment varies
- Outreach includes exhibits at Museum of Science and Industry, Chicago