CPS: Small: High-Impact Decision Making Using Cyber-Physical Systems: A Distortion-Based Framework

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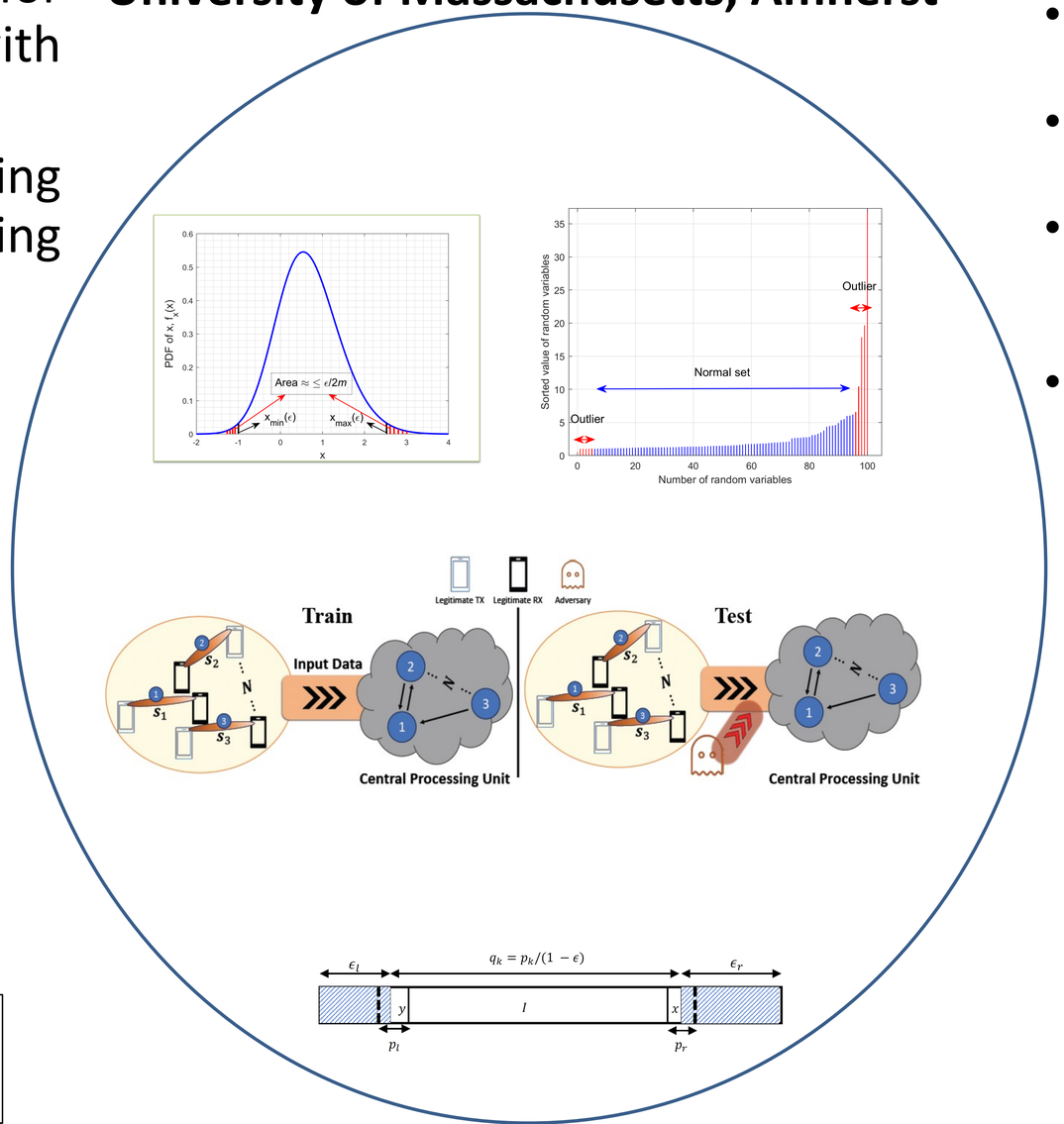
Challenge:

- Developing methods for robust decision-making with minimal data iterations
- Identifying and evaluating trade-offs in decision-making processes

Solution:

- Creating a comprehensive decision-making model spanning all decision categories.
- Utilizing a modified probability measure to calibrate event probabilities, enhancing likely outcomes and moderating less likely ones, and Broadening the scope to include asymmetric decision strategies.
- Introducing location privacy solutions for UAVs
- Integrates TinyML for efficient UAV communications
- Boosting processing within constraints and fortifying against cyber threats with advanced defenses



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Scientific Impact:

- Great impact on any algorithm that performs a decision-making process
- Empowers autonomous agents with advanced decision frameworks
- Enhances AI with capabilities for rare but significant event handling
- Complex systems where a high-impact event may happen with a small probability
- Adopt the developed theory for their applications

Broader Impact:

- Several parts of society
- Transforms decision-making in finance, guiding venture capital investments
- Influences public health strategy with data-driven decision support
- Bolsters SAR operations with enhanced decision-making tools