



**Pacific
Northwest**
NATIONAL LABORATORY



TACCRAB - Tactical Analysis for Calculating Contextual Risk at Boundaries

Automating Risk Assessment at Checkpoints through Digital Twins



TACCRAB logo prompted by
Hannah Kauffman using DALL-E.

NEED

The need for enhanced security at checkpoints, such as those at ports of entry or secure facilities, is essential for protecting international commerce and preventing criminal activities like human trafficking, contraband smuggling, and targeted acts of violence. Current methods often rely on manual processes and isolated systems, which can be inefficient and slow to adapt to rapidly changing threat tactics. These traditional approaches struggle to optimize resource allocation, leading to increased risk and longer traversal times through these systems.

BENEFIT

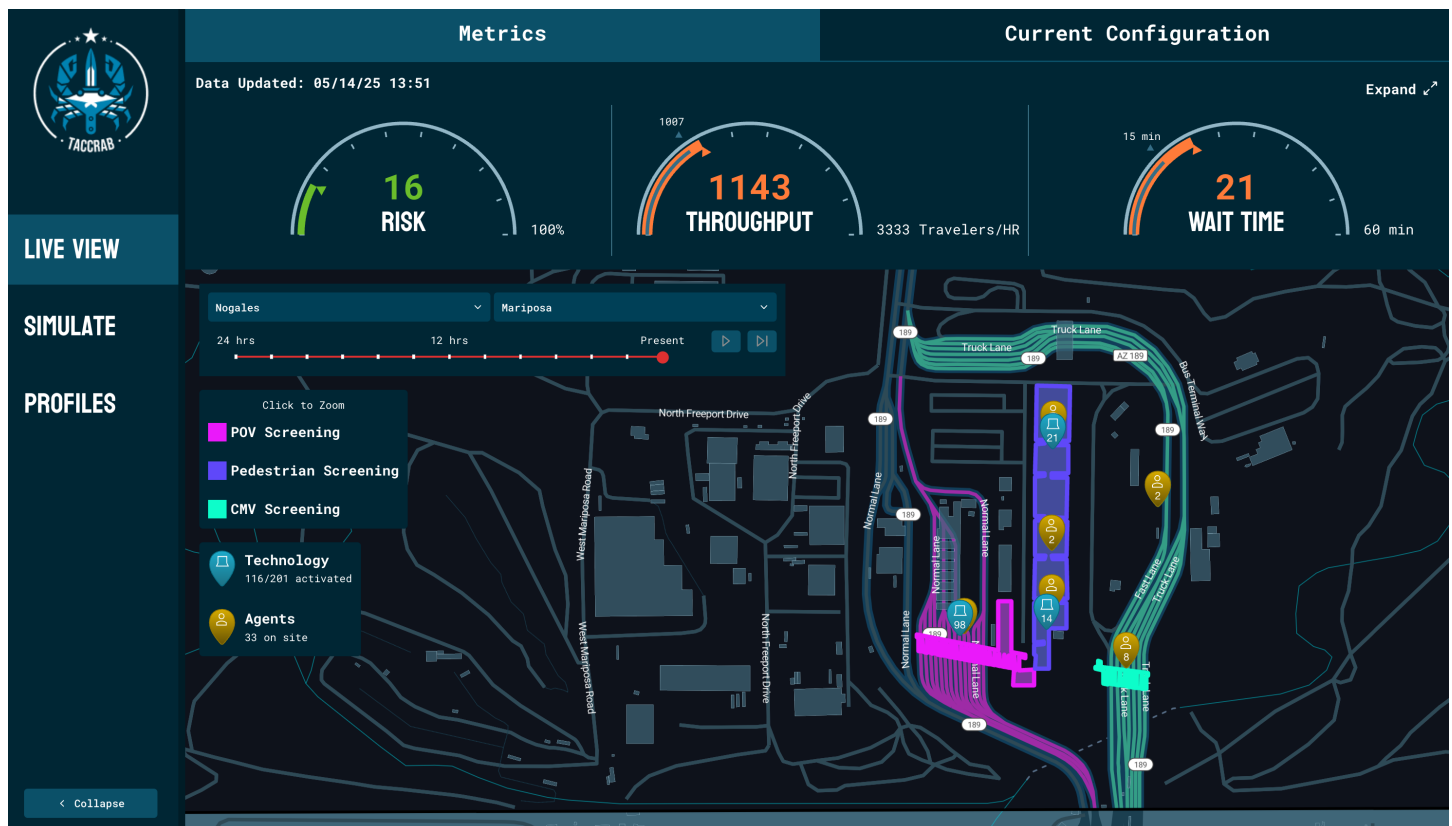
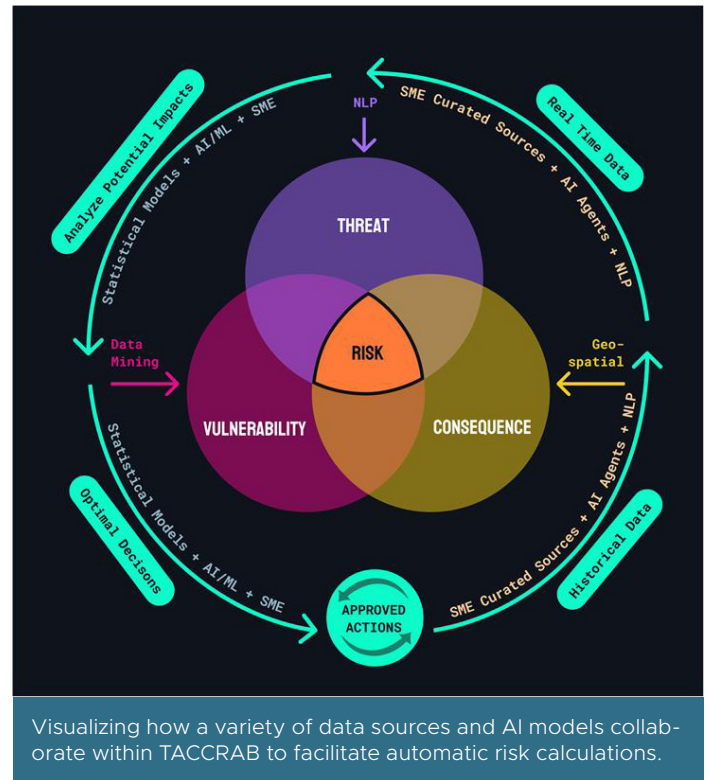
TACCRAB enhances decision-making capabilities at checkpoints by providing real-time feedback and predictive analytics. Benefits include:

- Risk and data-informed decision-making.
- Improved resource allocation to enhance security and reduce traveler wait times.
- Better understanding of how changes at one checkpoint affect the entire system.
- Increased efficiency in responding to changing threats and optimizing operations.

TACCRAB will make checkpoints more secure and efficient, ultimately protecting homeland security and improving the overall travel experience.

APPROACH

TACCRAb combines leading-edge digital twin technology and a risk assessment methodology with user-friendly features to enhance security at a variety of checkpoints, such as ports of entry, military bases, secure facilities, and soft targets. By using a digital twin that integrates historical and real-time data with advanced AI, it offers predictive insights and helps allocate resources more efficiently while mitigating risks. With TACCRAb, users can transition from a reactive to a proactive approach, identifying important trends and relationships between checkpoints to improve overall understanding and enable a quick response to potential threats. TACCRAb's interactive web platform allows users to monitor current checkpoint operations and explore various "what-if" scenarios. For either a single checkpoint or a network of checkpoints, TACCRAb helps stakeholders deploy human and technological countermeasure resources more effectively, and it informs stakeholder decisions to improve physical security.



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