



AROUND THE REGION IN HOMELAND SECURITY

The Northwest Regional Technology Center (NWRTC) is a virtual resource center operated by Pacific Northwest National Laboratory (PNNL) to support regional preparedness, resilience, response, and recovery. The center enables homeland security solutions for emergency responder communities and federal, state, and local stakeholders in the Northwest.

SHOE SCANNER TECHNOLOGY ON THE HORIZON FOR SECURITY

Take your shoes off and place them in the bin! While a necessity since 2006, it has been an inconvenient part of flying and one that can slow the security screening process. But one day soon, even those without a “pre-check” status may be able to keep their shoes on, step on a shoe scanner, walk through a next-generation body scanner, and speed safely on to their boarding gates.



PNNL developed the original [holographic millimeter wave scanning technology](#)—now used at airports worldwide—which can detect a variety of potential weapons or threats concealed under clothing. Working with the U.S. Department of Homeland Security Science and Technology Directorate, researchers at PNNL have expanded and advanced the capabilities of the original scanners, with an eye to improving the passenger experience.



The result is a next-generation, high-definition scanner that can identify even smaller threats with fewer false positives. In the process, they designed a similar technology that can screen a passenger’s footwear while on their feet. [The shoe scanner received an R&D 100 award in 2020](#) as one of the top 100 innovations of the year. (continued pg. 2)

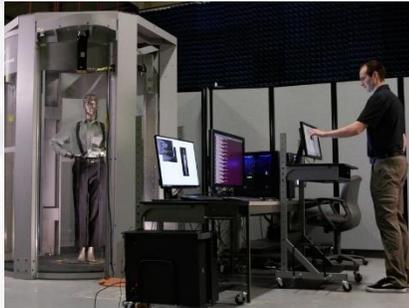
OPPORTUNITIES

Events current at time of publication. Have a virtual resource or event to share? Email us!

- July 12 – [Enhancing Resilience and Innovation Equity](#)
- July 26 – [Mitigating Evolving Threats and Understanding the Convergence of Breakthrough Technologies](#)
- August 15–19 – [Pacific NorthWest Economic Region Annual Summit](#)
- August 30–September 2 – [National Homeland Security Conference](#)

CONTACT

- Want to know more? Visit us at pnnl.gov/projects/nwrtc.
- Contact the NWRTC with questions and comments at nwrtc@pnnl.gov.



PNNL recently licensed the two technologies to [Liberty Defense Holdings, Ltd.](#), a concealed weapons detection company. Licensing government-

developed technologies to the private sector is one of the missions of national laboratories like PNNL.

To learn more, read the [press release](#) and see [PNNL available technologies](#).

SYMPOSIUM HIGHLIGHTS AIRPORT RISK ASSESSMENT MODEL

PNNL technology also has its shoe in the door (pardon the pun) of airport security with a recent symposium that highlighted the [Airport Risk Assessment Model](#) (ARAM). The event engaged stakeholders in a two-day, multi-session deep-dive of how the web-based tool can put security resource allocation planning right into the hands of our airport's front lines of defense.



“The tool is mathematically rigorous but user friendly, enabling security personnel to work more efficiently with the resources they have—all with the push of a button,” said Robert Brigantic, PNNL chief operations research scientist.

ARAM is an advanced risk modeling and assessment tool that helps airport security stakeholders prioritize the use of their resources based on evolving threats. As pilots with the tool continue at several U.S. international airports, feedback from the symposium will be used to drive future improvements in the technology.

IMPROVING GRID RELIABILITY IN THE FACE OF EXTREME EVENTS

The nation's power grid remains vulnerable to disruption from [extreme events including wildfires, severe storms, and cyberattacks](#). Variable generation resources and load volatility also present operational challenges to grid stability. To mitigate disruptions before they snowball, grid planners and operators must be able to see these events coming and understand their potential impacts on grid reliability.

Enter ExaGO, a modeling and optimization platform for solving large-scale, nonlinear power grid optimization problems. Short for exascale grid optimization toolkit, ExaGO is open-source software that can take advantage of high-performance computing and emerging heterogeneous computing platforms to model and forecast the impact of extreme events and operational complexities on power grid reliability.

ExaGO is being developed by PNNL under the [ExaSGD project](#), which involves five national laboratories and Stanford University and is funded by the U.S. Department of Energy Office of Science [Exascale Computing Project](#). [ExaSGD](#) focuses on developing algorithms and techniques to address these new challenges and optimize the grid's response to many potential disruptive events under different weather scenarios. To learn more, see the [web feature](#).



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