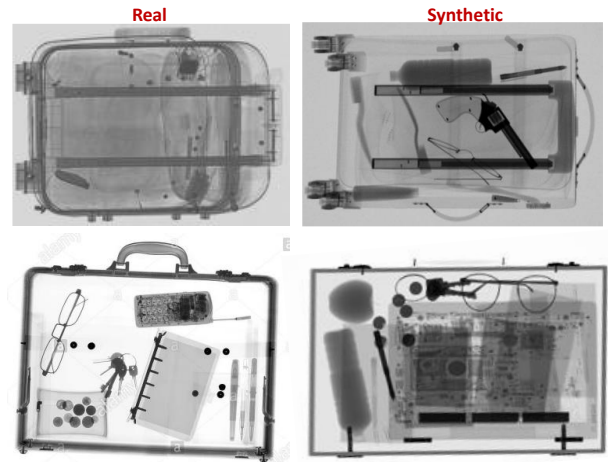# *Powerful Synthetic Data + Common Application Framework for State-of-the-Art Security Screening via QSim*

A complete security screening solution that enables:

- virtual testing and evaluation
- algorithm training and development
- hardware design and optimization
- evaluation of system performance with dangerous or controlled substances
- system of systems analysis
- certification readiness demonstration
- detection and false alarm performance analysis against representative data

Real   Synthetic

QSim is a toolset for **cutting edge synthetic X-ray data generation and understanding**:

- Accurate simulation for X-ray absorption (radiography, CT) and scatter (Compton, X-ray diffraction) physics
- Inherently multi-energy simulation
- In-depth validation against laboratory and deployed, commercial systems
- Extensive shape and material libraries for virtual object creation
- Realistic component responses (e.g., detectors, sources, optics)
- Closed loop between data generation and model outcomes
- Enables rapid iterations and collaborative workflow
- A tool for comparing, labeling, cleansing your data
- Powerful modeling, measuring, and data depiction tools
- Graphical and API-based control with cloud-native compute management

Virtual Air Cargo Radiographs