



NEURODIVERSE SUPPORT FOR NATIONAL SECURITY AI INITIATIVES

Leveraging an Untapped National AI Resource

Overview

- The OTAP project has been supported by individuals on the autism spectrum with tasks that leverage their strengths.
 - Ground-truth labeling of complex data.
 - Via the sub-contractor ANC.
- We believe that there may be additional opportunities for neuro-diverse people to help with tasks on other projects at Sandia.
- Request: Help identify projects and orgs that may be interested in utilizing neuro-diverse people for ground truth labeling tasks.

2021 DHS Pilot Results

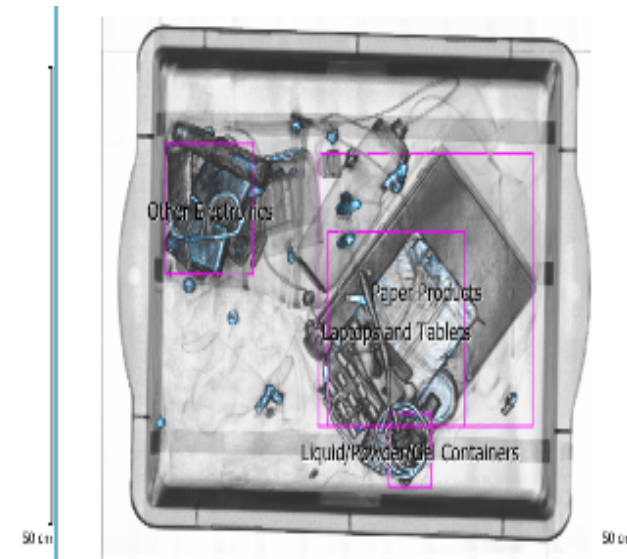
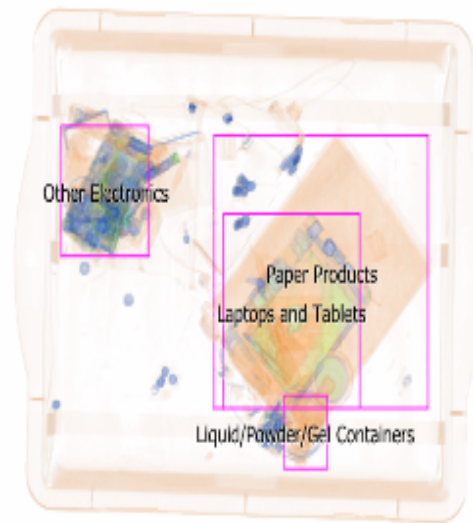
- A 3-month pilot with 15 annotators with ASD and 4 TSA SMEs
- Annotators with ASD performed similarly to TSA SMEs after only a 2-month training period with excellent performance:
 - Ability to quickly learn new complex 3D X-ray image analysis, annotation and labeling skills.
 - Highly qualified, motivated with desire to learn and excel.
 - Strong interest in supporting a national security mission through supporting TSA migration

- Helps improve TSA's neurodiversity meeting important social goals.

	Annotation and Labeling by adults with ASD	Annotation and Labeling by SMEs
Accuracy	90.3%	90.0%
Time Per Image	1.68 min	1.20 min

Neurodiverse AI Support for DHS

- Integrated team of cleared and trained annotators with ASD led by SMEs in threat analysis.
- Neurodiversity and empowerment.
- The importance of AI for National security.
- High-quality data is a major bottleneck for AI initiatives.



Leveraging a Neurodiverse AI Support Service on a National Scale

- Near-to-mid term Challenges with Data Labeling
 - Staff high turnover and long-term sustainment
 - Handling classified data
 - Training needs
 - Mission risk to a long-term robust AI-based analytical capability.
- Neurodiverse Support
 - Improved sustainability
 - Evidence of reduced security clearance challenge
 - Lower turnover
 - Reduced cost due to low staff churn
 - Positive perception neurodiversity provides further benefits
- Take the first step and start with a small pilot program!



Neurodiverse Data Labeling / Annotation Pilot Scope

- SNL
 - Identify data annotation / labeling project + funding
 - Sponsor ANC team for security clearances as needed
 - Refine performance evaluation framework, metrics and metric tracking system.
 - If needed, provide data annotation / labeling hardware and software (if classified data handling requires that).
 - Program management
- ANC
 - Provide integrated teams of annotators and labelers with ASD, SMEs & mentors experienced with guiding and working annotators and labelers with ASD.
 - Develop training materials and conduct training to integrated teams
 - Establish performance evaluation framework, metrics and metric tracking system.
 - Provide data annotation / labeling hardware and software
 - Project management