

# 3D Deep Learning Computational Neural Network for Weapons Detection

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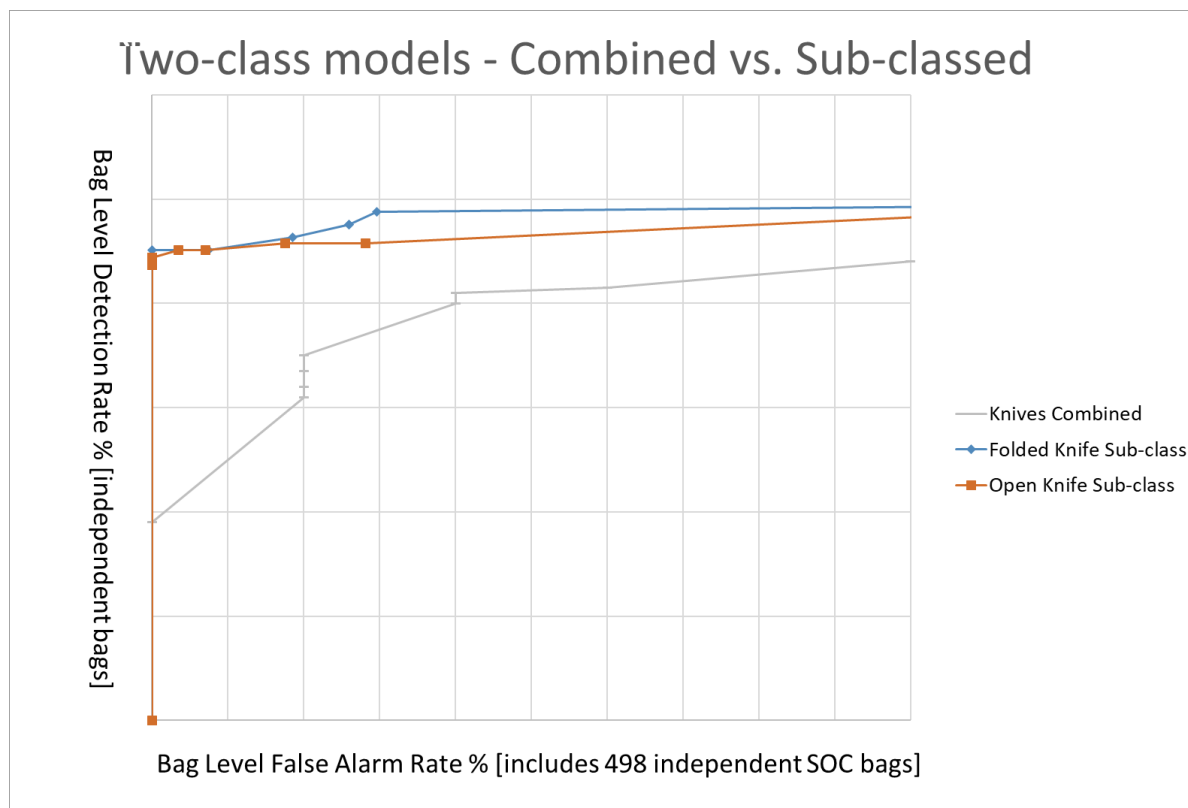
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# Overview of Capture Approach

- Full 3D Convolutional Neural Net Implementation.
- Built on Keras/Tensorflow.
- This presentation only focused on sharps.
- Training using IDSS DICOS scans, consisting of sharps in both simple and highly cluttered bags, together with large numbers of real-world Stream Of Commerce (SOC) bag images.
- Preliminary results suggest usable performance. The results reported here are based on:
  - Training sets of 200 threat bags per sub-class and 1000 SOC bags.
  - Test sets of 66 threat bags and 498 SOC bags per class.
  - Threat and Test sets were randomly separated before any training, except that simple “bin images” were excluded from the test sets.
  - Threat and Test bags do contain examples of the same threat objects (5-6 examples of each knife type).

# Results

(Preliminary, based on small datasets, 10,000 image training currently in process)



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