

D.A.D.O.E.S. 'H.R. FOR A.I.'

MAY 29, 2019

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CO-FOUNDER*

CHALLENGES OF TRAINING A.I. FOR GEOINT



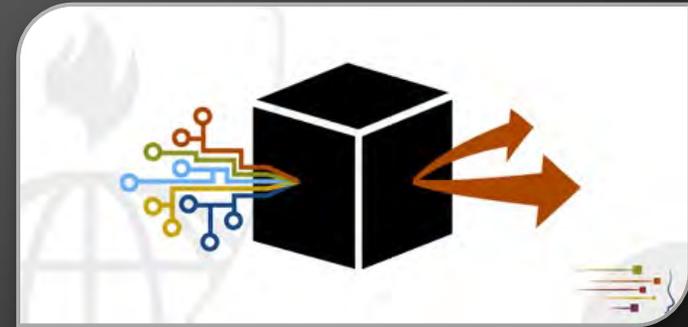
NOT ENOUGH TRAINING DATA

- ❑ Remote sensing data of specific objects and phenomena can take long time to collect
- ❑ Insufficient # of usable images for deep learning / inference modeling
 - ❑ Most of images remain untagged
 - ❑ Today's synthetic data not good enough



LACK OF DATA DIVERSITY

- ❑ Existing classification algorithms are customized & optimized to specific application / sensor / system
- ❑ High precision does not always result in high accuracy with limited training dataset (bias)
- ❑ Meta data and data fusion rarely used



DATA DESIGN FOLLOWING ALGORITHM DESIGN

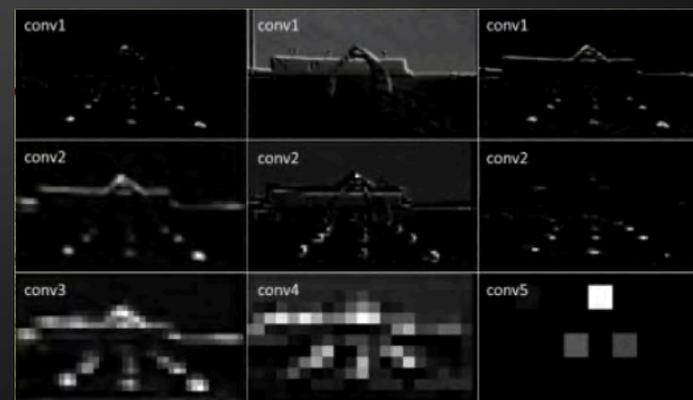
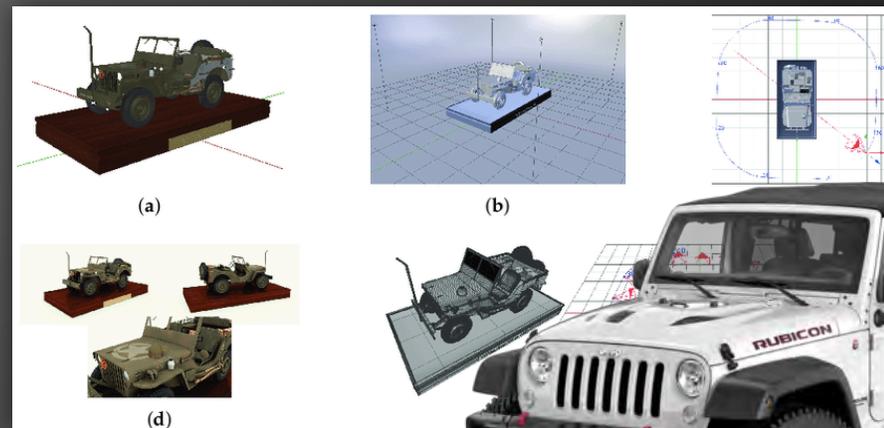
- ❑ Pre-training for pre-launch of system
- ❑ No easy way to acquire data sets to train known 'edge cases'
- ❑ Many end-users want to do their own analysis and limit sharing insight

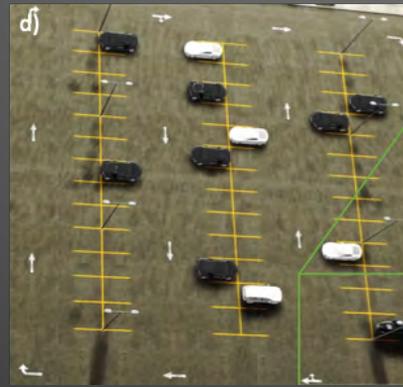
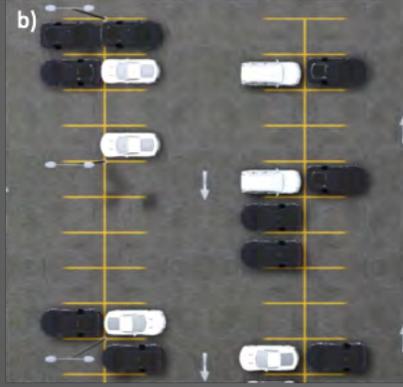
SYNTHETIC IMAGERY AS A SOLUTION

PHYSICS BASED MODELING

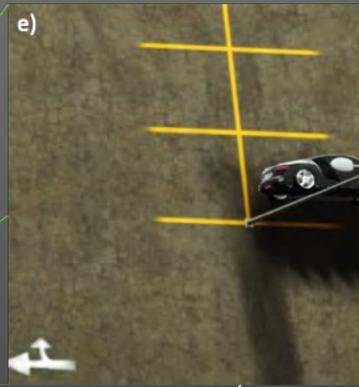
- Objects
 - Cars, planes, trains, ships, buildings, foliage
- Scenes
 - Lighting, atmospherics, clouds, smog
- Sensors
 - Pan-chromatic/RGB/Hyper-spectral/IR, LIDAR, SAR, Radiometric
- Rendering tools for image generation

Sophisticated AI developers use synthetic data in sensor/object specific scenarios; but no broad sensor/object/scene tools.

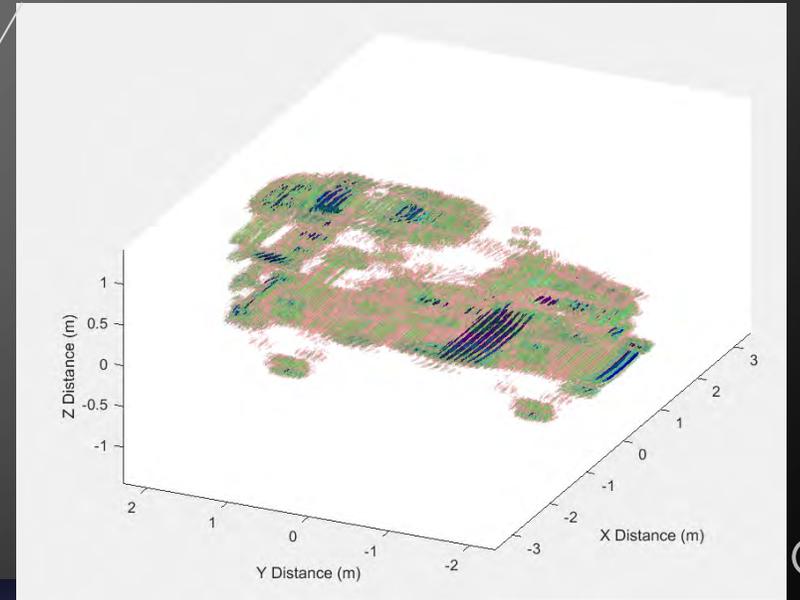




- a) Few Cars
- b) Many Cars
- c) Early Morning
- d) Late Afternoon
- e) Procedural Novelty



Multi-static SAR Imagery



EXAMPLE IMAGES



MORE CONTROL FOR YOUR WORKFLOW

Use our synthetic images or image simulation software to generate labelled data used in the training and validation of remote-sensing analytics and classification systems.

VALIDATION

- Accuracy quantification
- Training bias
- Quantifying range of accurate operation

TRAINING

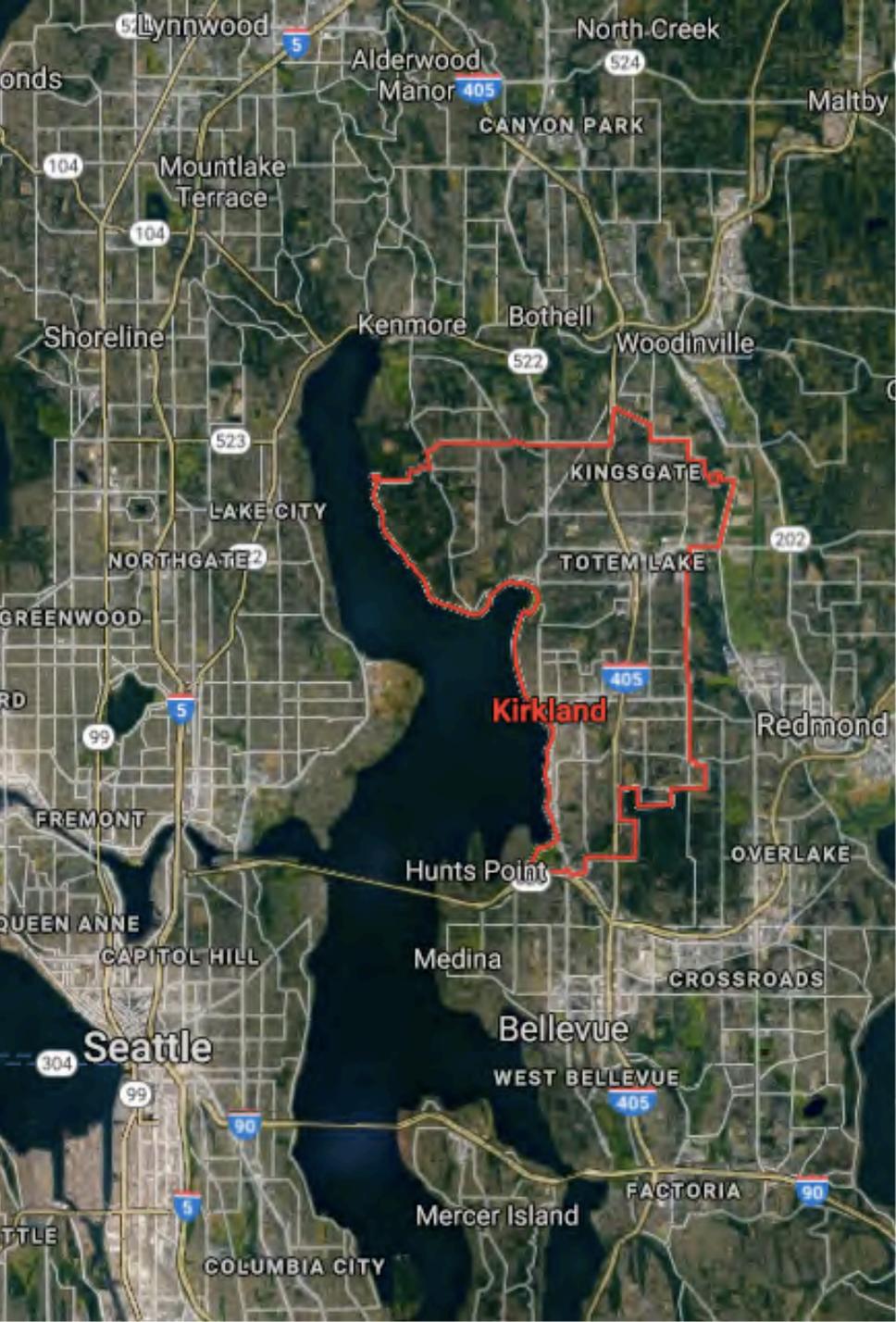
- Fully trained deep learning
- Detailed identifications
- Low probability event classification
- Training-guided data
- Sensor Fusion

DESIGN

- Sensitive/Private Datasets
- Mission Planning
- Latency/Cost/Accuracy analysis
- Faster planning & execution
- Constellation and sensor design

PARTNERSHIP OPPORTUNITY WITH DADOES

- **Our Team:** Physicists, Aerospace Systems Engineers, and Software/IT Experts experienced in Tech Startups and DoD/IC GEOINT
- **Talent Pool** in Pacific Northwest: center of cloud computing, computer vision, ML/AI, gaming, enterprise solutions, software engineering, and NewSpace
- Flexible, easy-to-use, **unifying SaaS tool** that customers can subscribe to
- **LOOKING FOR EARLY PARTNERSHIP** with sensor/data/intelligence providers



CONTACT US

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