Interpretable Artificial Intelligence for Space Applications
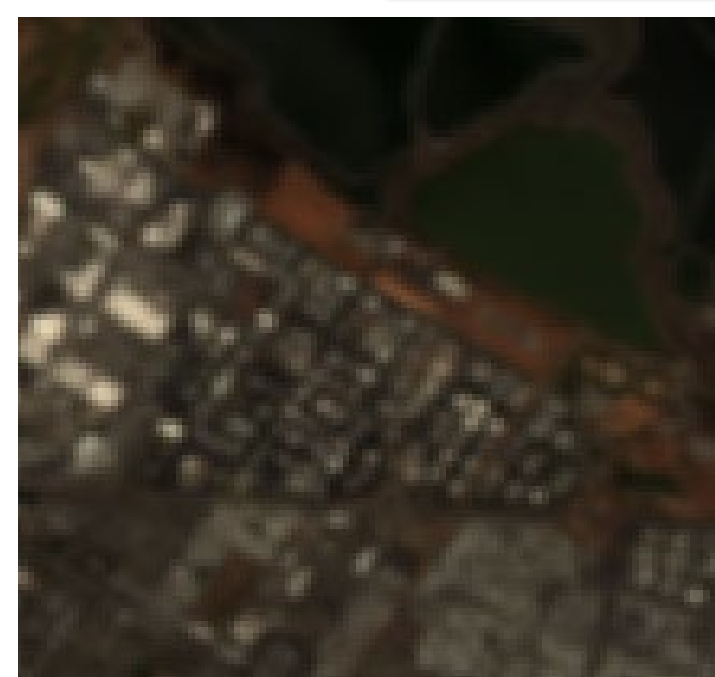
See the "unseen"

1. Dehazing

- Remove cloud & haze
- Data-driven
- Single-image
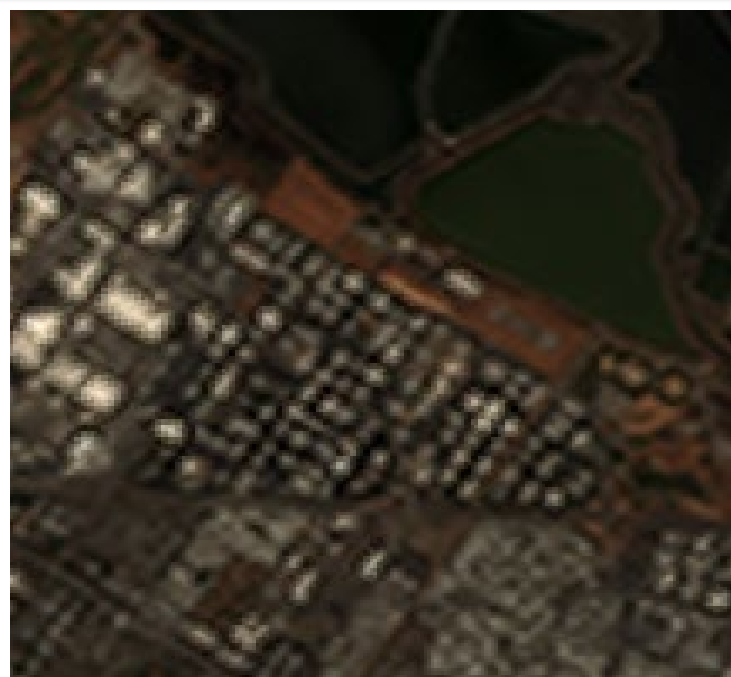- Multi-channel

2. Super-resolution

- See more MS details via AI
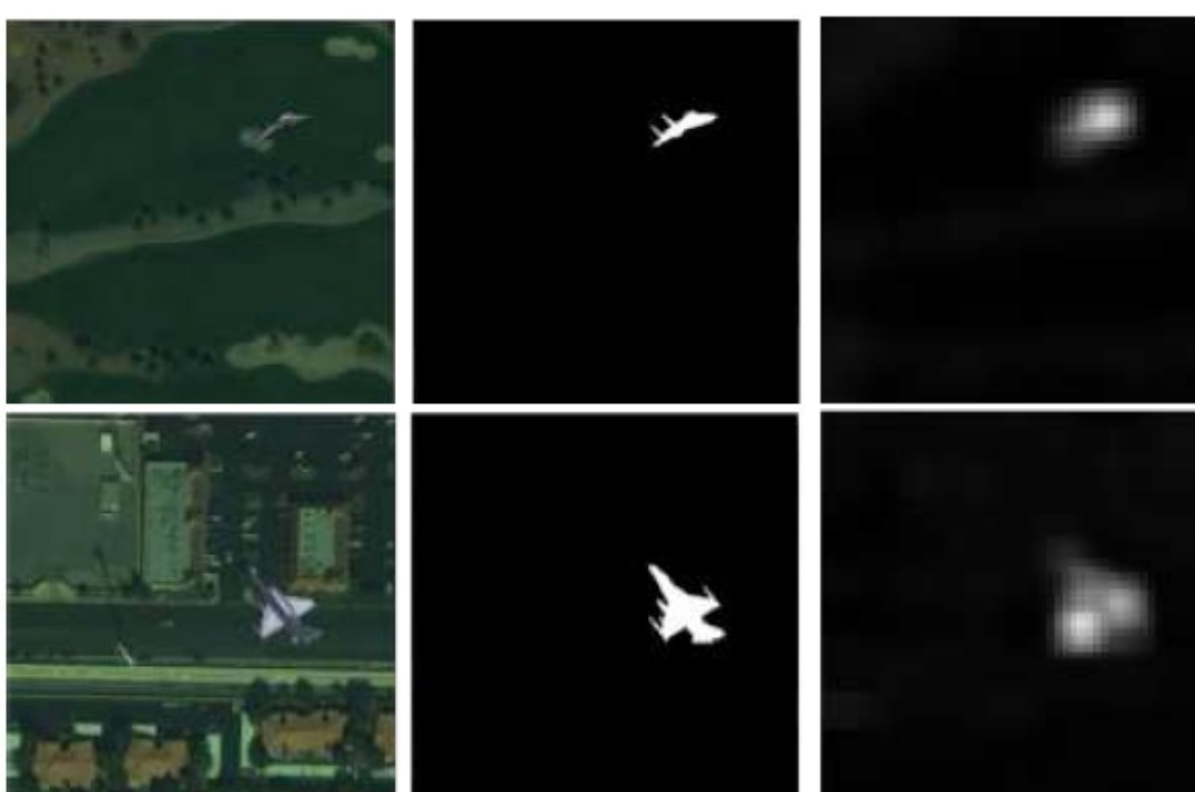
Conventional bicubic x 4   Proposed **DeepCASD-Net**

AI for Analytics
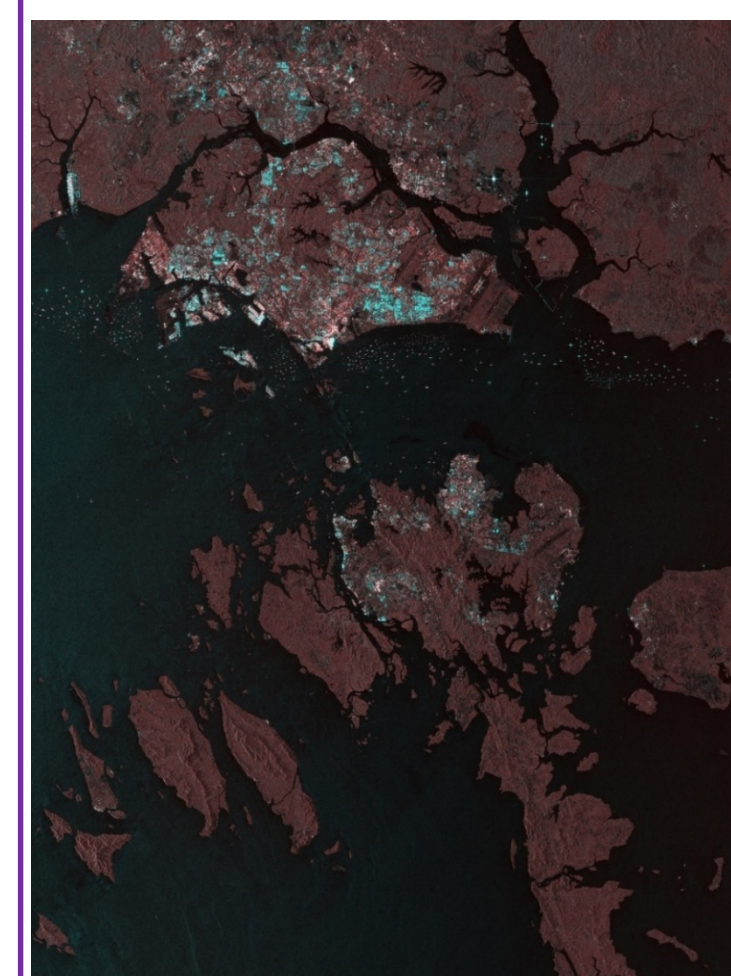
3. Road Seg & Extraction

- Auto-extraction from satellite images

4. Anomaly Detection

- Unsupervised anomaly detection
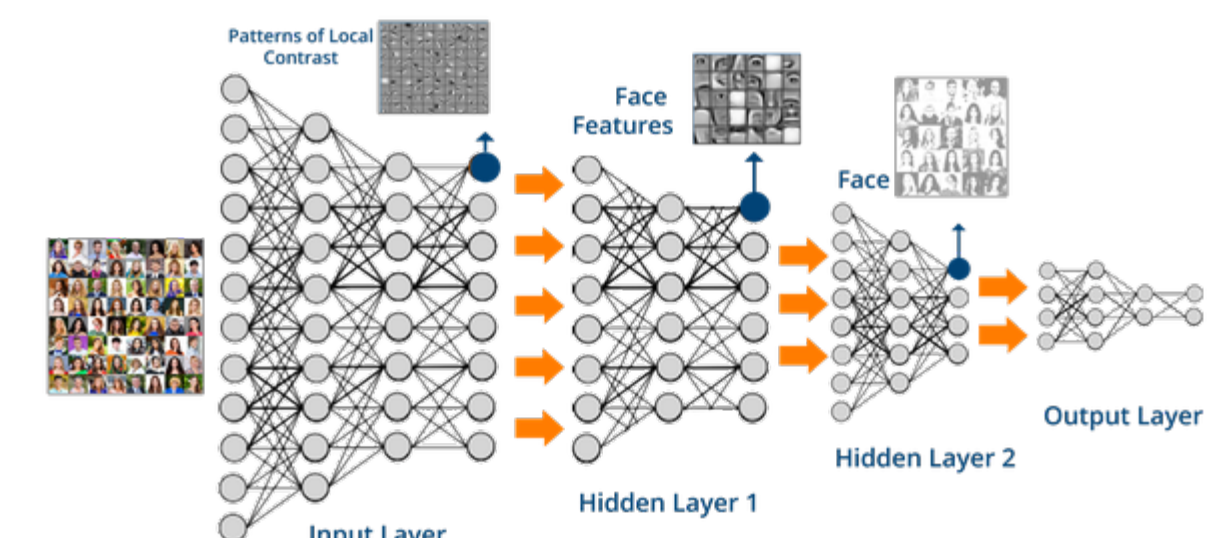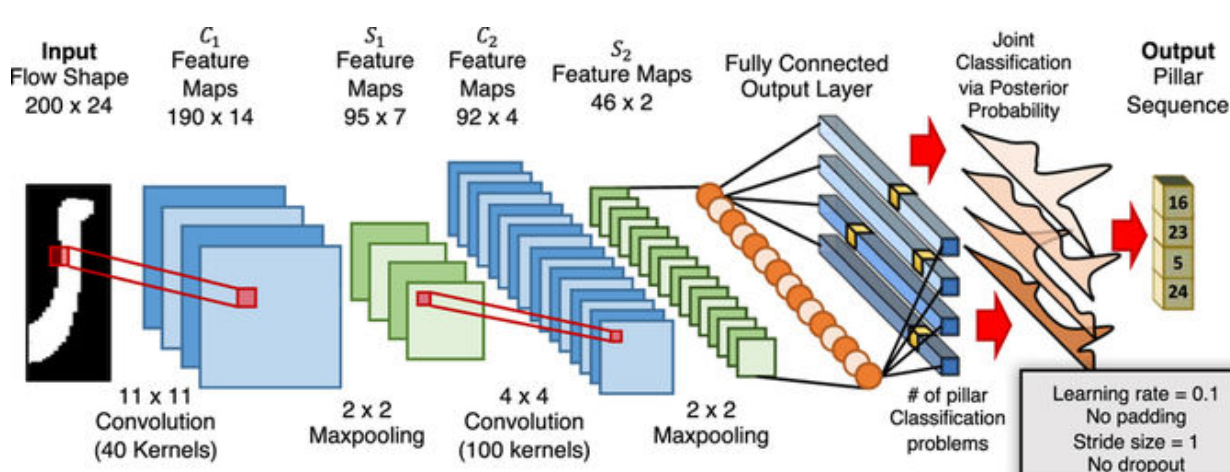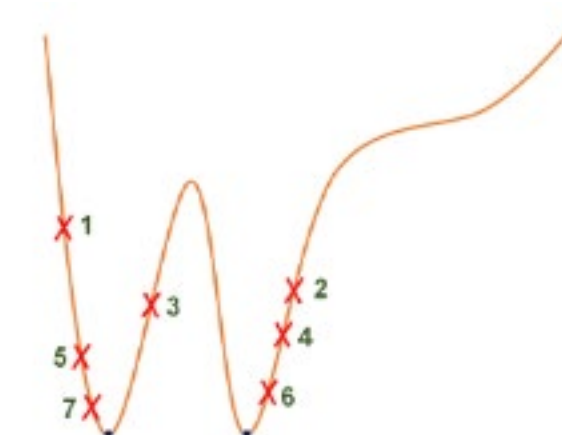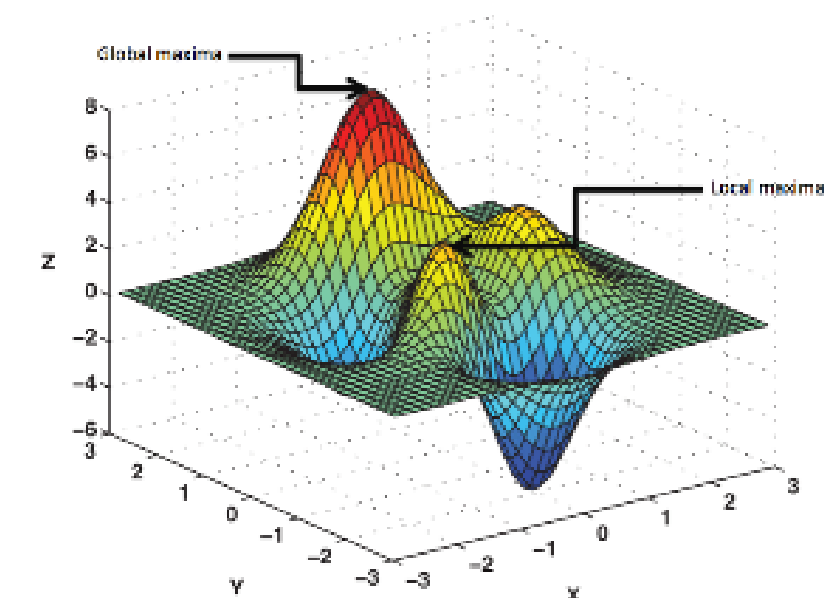- Zero / few shot of annotated data

Imaging & Transfer

5. SAR

- High-quality reconstruction
- Transfer from optical imagery via GAN
- Reliable synthesis

6. Map Generation

- Automatically generation from satellite imageries
- Geological landform transfer

Rigorous & Interpretable AI Engines

Theory & Optimization

- Mathematical analysis
- Platform Integration
- Data & Computational efficiency

Deep Learning

- End-to-end design and training
- Few-shot & Self-supervised learning
- State-of-the-art performance

Interpretability

- Knowledge embedding
- Feature disentangling
- Safety & Trustworthiness

- **Publications in 3 recent years**: IEEE SPM x1, IEEE TIP x 8, NeurIPS x 1, ICCV x 1, IJCAI x 2, Best Paper @ ICME 2020, etc.
- **Strong AI Team:** Research Fellows x 4, Research Associates x2, and PhD students x 5