- Computer Vision Group Inc.
  - computer vision R&D start-up located in providence, RI.
- Lead Investigator : Dr. Joseph L. Mundy
- Current Team Members
  - Andrew Miller, Sc.M.
  - Ozge Can Ozcanli, Ph.D.
  - Jim Green, Ph.D.
  - Vishal Jain, Ph.D.

Develop high-fidelity and efficient computer vision technologies based on 3-d reasoning to augment analysis capabilities for ISR activities.

Visibility/Occlusion estimation
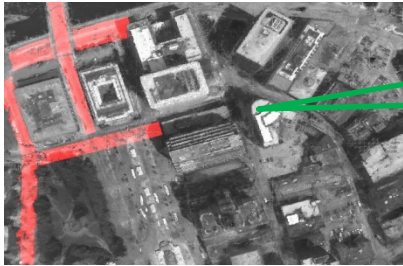
Enemy's Vantage point
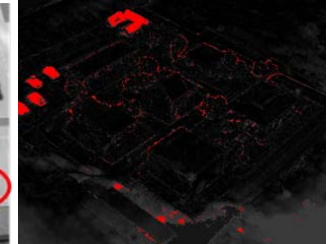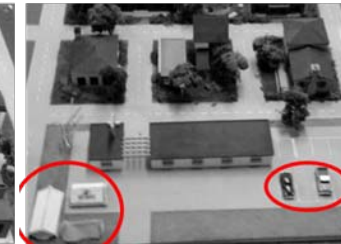
Red color shows region of interest such as roads.

Enemy's Vantage point

Green color shows VISIBLE region of interest from enemy's vantage point.
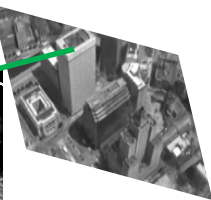
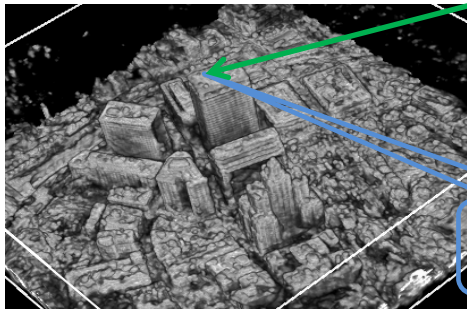## Geo-positioning

Geo-coordinates (Long=?,lat=?, ele=?)

Short-term Change Detection (shown in Red)

downtown-subregion3.avi

Long-term Change Detection (shown in Red)

Export Visualization of 3-d terrain

Real-time Volumetric Rendering on GPUs.

Web-browser based visualization

3-d textured mapped mesh

Galaxy Tablet

11"

5"   7"

iPhone
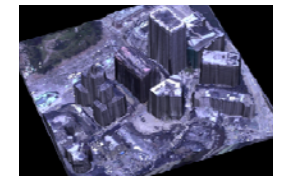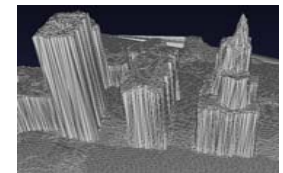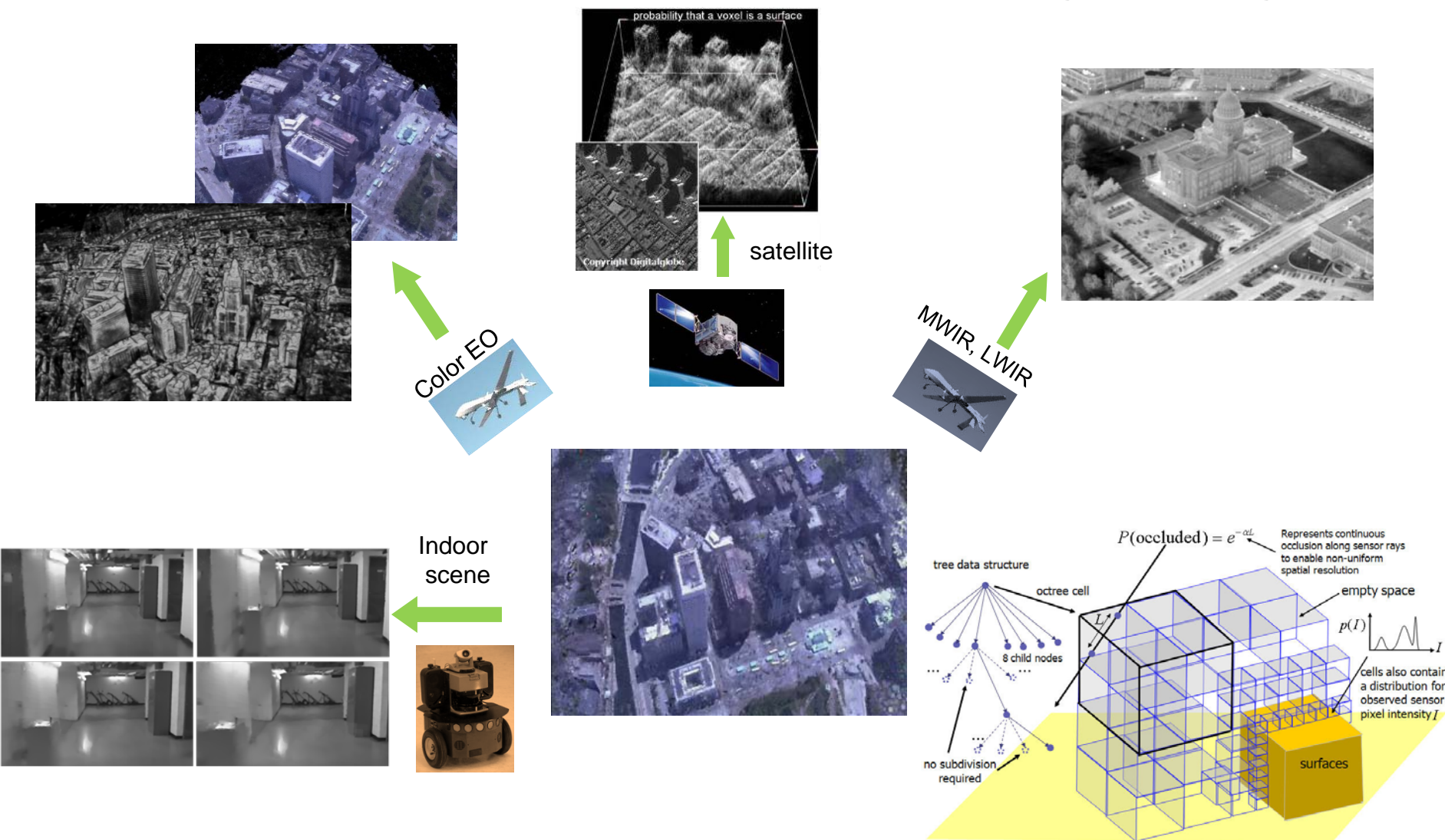
Core Technology:
Probabilistic Volumetric Representation (PVR)
Automatic and Real-time Dense 3-d Modeling from Images

probability that a voxel is a surface

Copyright Digitalglobe

satellite

Color EO

MWIR, LWIR

Indoor scene

$P(\text{occluded}) = e^{-\alpha L}$

Represents continuous occlusion along sensor rays to enable non-uniform spatial resolution

tree data structure

octree cell

empty space

$p(I)$

8 child nodes

no subdivision required

cells also contain a distribution for observed sensor pixel intensity I

surfaces

- Specific capabilities your group is seeking

  - SLAM systems
    - Approximate sensor estimation for indoor scenes for building 3-d models.

  - Object Recognition
    - Narrow down search of areas to be indexed for geo-location.

Contact Information

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