

IARPA WRIVA Lightning Talk Kitware, Inc.

Website: <https://kitware.com/expertise>

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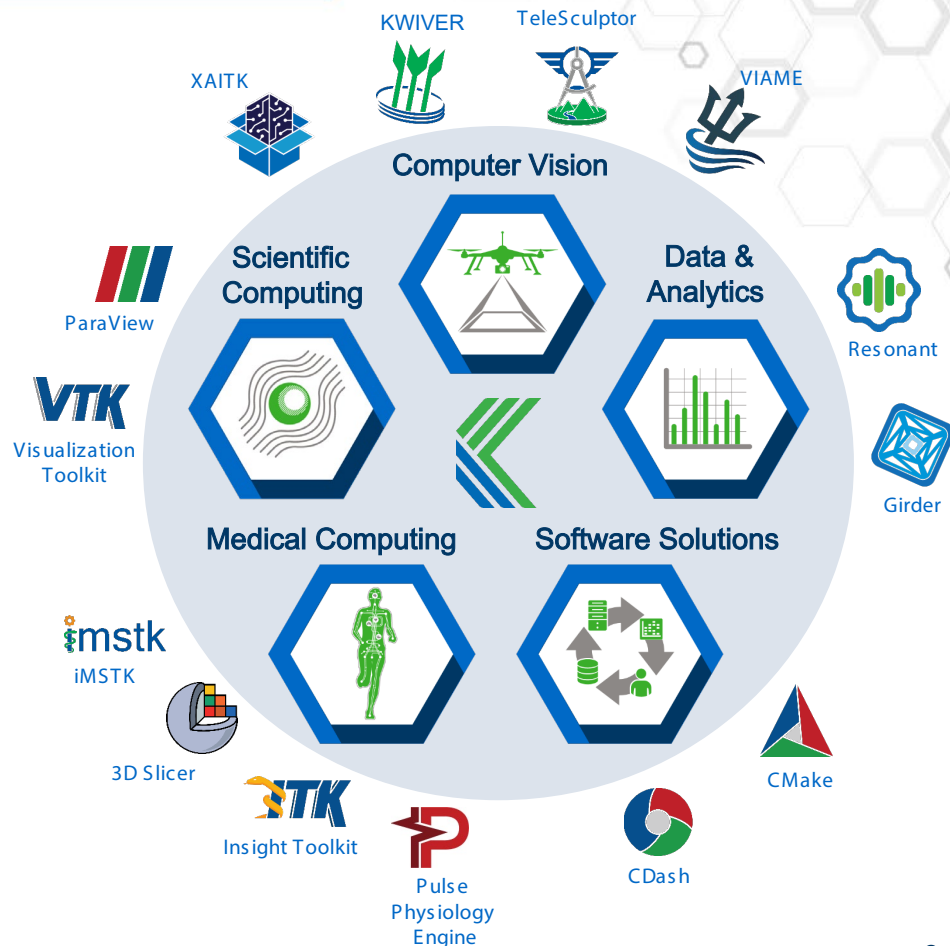
Kitware Computer Vision Team

Kitware Company Overview

- **Open-source software R&D:** algorithms & applications, image & data analysis, training data, integration, & testing
- **202 employees:** 1/3 PhD, 1/3 masters
- **Offices:** Albany, NY; Chapel Hill, NC; Santa Fe, NM; Arlington, VA, Minneapolis, MN; Lyon, France
- **Secure facility:** Albany, NY; 44+ cleared personnel, SCI clearances

Commercial and Government Business Models

- **Commercial: 10% of Revenue**
 - Efficient commercial contract process
 - Commercial business models to suit commercial business needs
- **Government: 90% of Revenue**
 - Efficient government contract process
 - All government-funded software is provided with **unlimited rights** to the government
 - Software released as **open source** when permitted



100% Employee Owned

kitware.com

Relevant Experience

Established leader in computer vision and ML R&D for IC and military applications, including 3D vision

- **Extensive CV and ML expertise**
 - 30+ PhDs, 14 years
 - \$70M+ in CV/ML R&D contracts from DOD and IC
- **Program Experience**
 - Prime on IARPA SMART, BRIAR, DIVA, **CORE3D**, DARPA URSA, Semafor, Medifor, SAIL-ON
 - Multiple 3D vision SBIRs with DARPA, AFRL, NGA, SOCOM, NVESD
- **Data Focus**
 - Satellite imagery, UAV video, and surveillance video
 - Collection, curation, and annotation of large datasets
- **Collaboration**
 - Large-scale collaborations with universities including integration and hardening for blind program evaluations and technology transition to operational agencies



CORE3D

DIV[A



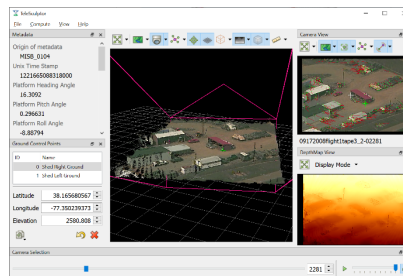
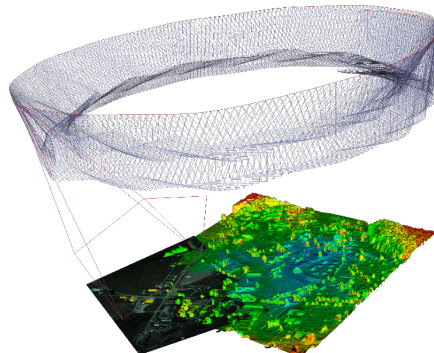
BRIAR

Proven Relevant Capabilities

- **3D Reconstruction from UAV (FMV)**
 - Open-source software: TeleSculptor
 - Handles MISB 0601 KLV metadata
 - Funded by AFRL, transitioning to NGA
- **3D Urban models from satellite images**
 - Open-source software: Danesfield
 - Developed on IARPA CORE3D
 - Building segmentation and meshing
 - Output buildings in 3D Tiles
- **3D Reconstruction from ground images**
 - From RGB images on DARPA URSA
 - From multispectral on DARPA Invisible Headlights
- **Large-scale data processing on AWS**
 - Hundreds of TB for IARPA SMART
- **Miscellaneous**
 - super resolution, scene understanding, target re-identification, 3D visualization



<https://telesculptor.org/>

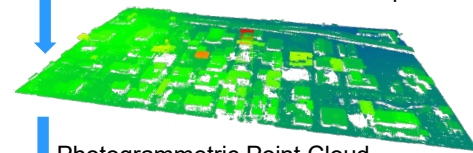


Danesfield

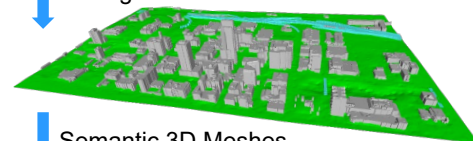
<https://github.com/Kitware/Danesfield>



WorldView3 PAN & MSI – Multiple views



Photogrammetric Point Cloud



Semantic 3D Meshes



Textured 3D Meshes



Teaming Pursuits

<Tentative- subject to BAA details>

Planning to prime

Looking for collaborators who are

- Willing to open-source all work

and are experienced in

- Neural rendering
- Neural implicit surfaces
- Large-scale SFM and MVS
- 3D model completion
- Image-base camera localization

Kitware Mission

*Advance the frontiers of understanding by developing innovative **open-source** software platforms and integrating them into research, processes, and products.*