

OPEN SOURCE INFORMATION GEOSPATIAL OVERLAY (OSIGO)



CONTACT INFORMATION

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Topic Name: Open Source Information
Geospatial Overlay (OSIGO)

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ABOUT THE COMPANY

Geosemble Technologies Inc.

Founded 2004 - Andre Doumitt, CEO.
Provides automatic techniques
for extracting and fusing
geospatial data sets, including
maps, aerial imagery, lists, events,
databases, business information
and other data. Spun off from
University of Southern
California (USC)

Increased
commercial
revenue by
approx.
30%

VALUE PROPOSITION

Geosemble's OSIGO tool automatically and rapidly links designated features or points on satellite images with geospatially related open-source data to accelerate and improve use of disparate, yet related information to support analysis and improved decision making.



TECHNICAL CHALLENGE ADDRESSED

Satellite imagery and aerial maps contribute their greatest value in military, intelligence and commercial applications when rapidly linked with online information, news, intelligence reports, text documents, videos and other open-source datasets. Current manual or semi-automatic methods for linking datasets are expensive and time consuming. In addition, imagery and datasets collected at different times typically do not have identical resolutions, projections, precisions or accuracy. Thus, correlating open-source datasets to a precise point on an image or map was difficult, and once correlated, there were no methods to summarize information. The technical challenge undertaken by Geosemble was to develop and apply automatic, scalable methods to find, correlate and assign open-source datasets to a specific feature or point on an image or map and provide summary information to enhance a user's interpretation and decision making.

TECHNOLOGY DESCRIPTION

Geosemble developed a set of innovative geospatial reasoning methods for rapid and automatic alignment and linkage of open-source information to satellite imagery and aerial maps. Under a complimentary Air Force STTR, the company developed compilation and reconciliation methods (conflation) of satellite imagery and raster maps to align and correlate roads and parcels between the two data sets.

Rapid alignment and linkage of open source information enhances data interpretation and enables end-user ability to make better decisions in support of operational or commercial objectives. The system allows an analyst to view a satellite image of any place in the world, automatically find and link geospatially related documents, and then browse a summary of the documents. In particular, the system enhances the richness of maps by including features such as road names, parks, streets and information on buildings automatically and accurately on top of satellite imagery.

The system can be used as a stand-alone tool or integrated within a larger suite of software. For assignment of text data to aerial imagery, the system builds on the aligned vector layers with a patent-pending automated analysis, correlation and assignment process that applies geospatial reasoning in the area of interest to accurately identify and link data pertaining to a specific point in the image. This process also scales well and can be done on-the-fly thus enabling users to automatically link a wide range of data to specific points on an image. Such rapid and accurate geospatial linking gives users a quick, deep understanding of the depicted scene for enhanced interpretation. No International Traffic in Arms Regulations (ITAR) restrictions have been applied to the software.

LESSONS LEARNED & BEST PRACTICES

- Have key military or commercial applications for the technology in mind as a starting point for writing an SBIR Phase I proposal.
- Define and validate the user's application during Phase II prototype development, to ultimately guide integration of technology into operational environments. The initial Geosemble technology application was changed as a result of end-user feedback obtained during the validation process.
- Have at least one person on your team responsible for coordinating all activities associated with validating, refining and pursuing DoD or other federal and commercial applications.

ECONOMIC IMPACT

The SBIR project has had a significant economic impact on Geosemble's growth and success by establishing the company's credibility as a viable small business partner and as a thought leader in this domain. Other significant outcomes:

- Based on user needs assessments, Geosemble designed and developed a commercial Graphical User Interface that showcased the system's functionality for municipal users and for the broader commercial marketplace
- Sold system to two U.S. municipalities - Culver City and El Segundo, California
- Increased commercial revenue by approximately 30 percent
- Secured an investment from In-Q-Tel to mature and commercialize technology
- Secured additional government contracts from DoD and Intel amounting to 150 percent of company's annual revenues to date
- Awarded Phase II AF and Phase II DARPA funding
- Secured a partnership with a Prime Defense supplier to pursue additional federal contracts

APPLICATIONS

Geosemble's technology can be applied to both government and commercial markets. The U.S. Intelligence Community is currently using the company's OSIGO-based GeoXray product. U.S. municipalities are also using the software to showcase the assets within the region to support redevelopment initiatives focused on attracting business to those cities. For example, the City of El Segundo, California has launched an application that allows users to see news for specific points on maps or aerial imagery. Users can click on an object such as a building, see what business is there and read news about the business.

PARTNERING & COLLABORATION

Geosemble partnered with the USC to support the natural-language processing (NLP) component of its tool which is required to automatically cluster and summarize the text linked to a geographical location. The company also worked with the City of Culver City, CA to define user requirements and use cases before developing the system. In collaboration with USC, the company integrated Department of Homeland Security (DHS) Phase I program technology in dealing with point-location data to achieve a useful combination for both government and commercial customers.