CCICADA
Open positions for 2011 Summer Interns
at Geosemble Technologies
El Segundo, California

Geosemble Technologies has the following openings for DHS CCICADA Center interns:

We welcome interns eager for a challenging and interesting computational environment that emphasizes building concrete state-of-the-art working systems that validate technical ideas and theory. Successful candidates will be mainly responsible for researching and developing geospatial and multimedia data linking components for Geosemble projects and applications sponsored by DHS. This is a great opportunity to work in a dynamic, interesting, and challenging environment with world leaders in the areas of geospatial and multimedia data management and to experience how to build and run large-scale systems and perform efficient computations on large and heterogeneous data sets. .

Description of Geosemble Technologies

Geosemble Technologies provides automatic techniques for extracting and integrating geospatial information, including maps, aerial imagery, news, events, databases, business information and other data. The company was founded in 2004 as a spin-off from the University of Southern California and does business with a range of US Federal Government agencies as well as municipalities. For more information please visit www.geosemble.com.

Overall Description of Research

Our principal research and product development goals are to support a range of users to make smart, location-based decisions based on a fusion of imagery, news, schedules, events and a range of other data. We focus on the following specific themes:

- extraction and normalization of geospatial information from various sources;

- linking of geospatial information to various media, such news, blogs, tweets, events, photos, audio, video, maps, etc;

- development and application of various kinds of geospatial platforms (e.g., Google Map and Google Earth) in order to intuitively visualize the integrated geospatial information and multimedia data, with the goal of finding relevant knowledge that supports smart decisions quickly.

Mentors of Summer Interns are very highly regarded research scientists and senior developers in their areas, all of them with extensive experience in running research and development projects and advising Masters and Ph.D.-level students. In all cases, the interns' work will complement existing research projects in DHS-related activities.

Available Projects and Mentors

Linking Multimedia Data to Geographic Locations

Number of interns: 2

General description: Geosemble Technologies matches and links news articles to geospatial features. Such geospatial analysis and reasoning techniques require several multidisciplinary technologies from the areas of image/pattern-recognition, geospatial information systems (GIS), databases and artificial intelligence. The underlying mathematical foundation, however, is shared and relies on machine learning techniques (e.g., support-vector-machines), and statistical analysis (e.g., TF/IDF). Under this project, we intend to extend our techniques to find and link other types of text documents such as blogs and events as well as closed captions or recognized text from images, audio, video and maps. These various text sources have their own challenges as they differ from news articles. For example, blogs are less structured, image

captions are sparse, video/audio recognized text is erroneous and map recognized text is both sparse and erroneous. Mentor: Dr. Ching-Chien (Jason) Chen, jchen@geosemble.com, http://www.geosemble.com/

<u>Logistical Details</u>

Interns can start between May 15 and June 15, 2011, and continue research until no earlier than August 15, 2011. Interns will be assigned office space together with current employees and will work closely with them on projects of mutual interest.

Interns will enjoy casual dress, flexible schedule and fun team environment. Geosemble Technologies is located 1.9 miles from the beach in El Segundo, California on the Santa Monica Bay