

# Department of the Navy SBIR/STTR Transition Program

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ONR Approval #43-8744-21

Topic # N19A-T024

CUES: Cyber-mediated Usable Emotional Sensors  
Carley Technologies, Inc.

## WHO

**SYSCOM:** ONR

**Sponsoring Program:** Distributed Common Ground/Surface System-Marine Corps (DCGS-MC)

**Transition Target:** Phase III contract leading to incorporation into a Program of Record

**TPOC:**

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**Other transition opportunities:**

Distributed Common Ground/Surface System-Marine Corps (DCGS-MC);

Distributed Common Ground System - Army (DCGS-A);

Intelligence services in general (e.g., DIA, CIA, NSA, etc.). CyberCom;

Law Enforcement Agencies;

US State Department - GEC;

DHS, other US Government Agencies;

Insurance Companies;

Healthcare Providers;

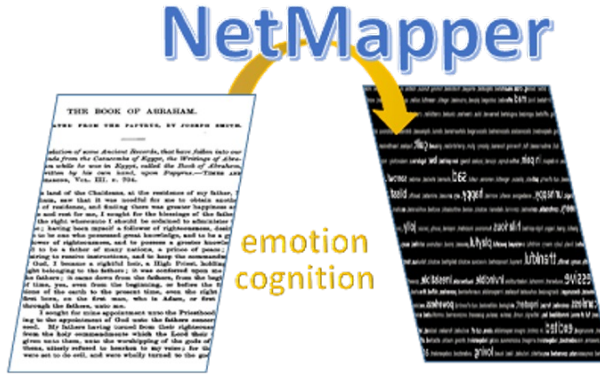
Media Surveillance;

Insider Threat Assessment;

Threat Identification;

Identification of at-risk Individuals;

City and State Governments



Detecting and Labeling of Emotional Cues in Social Media Texts

## WHAT

**Operational Need and Improvement:** Text analysis systems that use stream analysis models and analytical tools to detect, characterize, and visualize propaganda that targets the emotions of anger, hate, fear, and disgust. The specific requirement is greatly improved ability to focus on the emotional impact of the texts on the audience. The need is for systems that go beyond the existing approaches which use dictionaries to assess whether messages are positive or negative rather than trying to assess the emotional impact on the specific audience. The needed system should operate in many languages and be easily extended to new languages. In summary, the operational need is for a system that is scalable language-agnostic open-source exploitation solutions for assessing the potential emotional impact of a message on the audience.

**Specifications Required:** Scalable language-agnostic open-source exploitation solution for assessing the potential emotional impact of a message on the audience should have the following properties. It must measure subconscious emotional cues in texts. It must operate in many languages, must handle multi-lingual messages and must be easily extensible to new languages. It must interpret emojis and emoticons. It must be able to efficiently process large volumes of text data in real time.

**Technology Developed:** Technologies developed include localized sentiment assessment algorithms, hate speech detection algorithms, and moral value assessment algorithms. The developed software is extremely efficient and offers increased speed of processing allowing real-time processing of increased volumes of messages. The developed software interprets emojis and emoticons, operates in over 40 Languages and is easily extensible to additional languages. The developed software is also capable of operating on multi-lingual messages.

**Warfighter Value:** Improved situational awareness. A computational linguistic system for identifying the emotional impact of messages on the audience enables the Warfighter to better understand and predict potential audience reaction to messages by measuring the subconscious emotional cues in texts. The system offers the Warfighter improved understanding of the emotional impact of a message on the specific audience. Provides increased support for Decision Making.

## WHEN

**Contract Number:** N68335-20-C-0568 **Ending on:** July 15, 2022

Milestone	Risk Level	Measure of Success	Ending TRL	Date
Demonstration of Automated Extraction of CUES from texts	Med	Successful demonstration	TRL6	3rd QTR FY21
Demonstration of Hate Speech Detector	Med	Demonstration of Detector with > 80% reliability	TRL6	4th QTR FY22
Demonstration of Moral Value Assessment	Med	Demonstration of Assessment with > 80% reliability	TRL6	4th QTR FY22

## HOW

**Projected Business Model:** Operate as subcontractor under a Prime responsible for delivering C4I user interface. SBC delivers and supports the software developed under this contract.

**Company Objectives:** Incorporation of Technology into Program of Record.

**Potential Commercial Applications:** Healthcare

Civil liberties advocates

Media Surveillance;

Insider Threat Assessment;

Threat Identification;

Identification of at-risk Individuals;

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