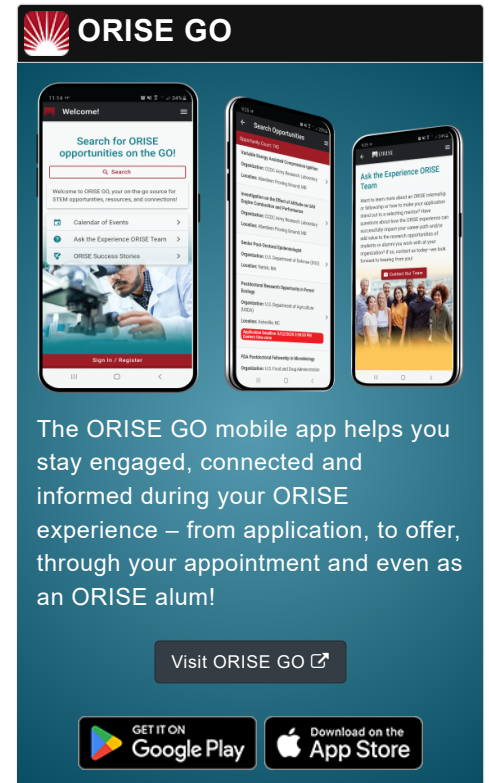


Opportunity Title: Forensic Cyber Linguistics: Attribution, Sentiment and Statement Analysis of Digital Communication
Opportunity Reference Code: IC-16-11

Organization	Office of the Director of National Intelligence (ODNI)
Reference Code	IC-16-11
How to Apply	<p>Create and release your Profile on Zintellect – Postdoctoral applicants must create an account and complete a profile in the on-line application system. Please note: your resume/CV may not exceed 2 pages.</p> <p>Complete your application – Enter the rest of the information required for the IC Postdoc Program Research Opportunity. The application itself contains detailed instructions for each one of these components: availability, citizenship, transcripts, dissertation abstract, publication and presentation plan, and information about your Research Advisor co-applicant.</p>
Application Deadline	4/15/2016 6:00:00 PM Eastern Time Zone
Description	<p>The complexion and sophistication of the cyber threat landscape continues to troublingly burgeon; cyber adversaries continue to develop and launch insidious, surreptitious, and damaging attacks—with the scope and breadth of targeted United States networks ever-increasing. This continuum of escalation requires development and implementation of novel solutions to identify, defend and mitigate cyber attacks and associated threat actors. Understanding cyber adversaries' motivations, affiliation, sophistication and ideation-to-action trajectory through statement analysis is critical not only as an independent analytical component, but to augment existing information and analytical capabilities. This project endeavors to develop the nascent discipline of forensic cyber linguistics, or “cyber statement analysis,” toward a formalized methodology enabling valid, reliable and repeatable analysis of digital communications—both written (“verbal”) and non-verbal—to determine authorship, affiliation, motivations, psychological state, and technical sophistication of cyber threat actors. Further, the methodology would aid in detecting multiple account identity deception, wherein one adversary may be using multiple online personas for denial and deception. The research could include a review of cyber attacks in which the adversary made direct or collateral communications prior, during, or after an attack—including threats, proclamations, manifestos, statements and other online communications. These statements, examined in conjunction with digital artifacts and other evidence from the attack, could lend to the development of a holistic and probabilistic model of indicators toward richer, formalized, forensic cyber linguistics—critically elucidating a cyber adversary’s attack trajectory on an ideation-to-attack continuum.</p> <p>Example Approaches</p>

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Example approaches include the development and implementation of (1) empirical research that assesses multiple modalities of digital communications for data such as: parts of speech (pronouns, nouns, articles and verbs); extraneous information; deception; sentiment; veracity; conviction; balance of the statement; impression management; genuineness; leakage cues; evasiveness; and other factors; (2) Research and model development to holistically assess cyber attack artifacts using cyber adversary statements as a probative lens to authenticate, verify or dispel.

**Eligibility
Requirements**

- **Citizenship:** U.S. Citizen Only
- **Degree:** Doctoral Degree.
- **Discipline(s):**
 - **Business** (11 )
 - **Chemistry and Materials Sciences** (12 )
 - **Communications and Graphics Design** (6 )
 - **Computer, Information, and Data Sciences** (16 )
 - **Earth and Geosciences** (21 )
 - **Engineering** (27 )
 - **Environmental and Marine Sciences** (14 )
 - **Life Health and Medical Sciences** (45 )
 - **Mathematics and Statistics** (10 )
 - **Other Non-Science & Engineering** (13 )
 - **Physics** (16 )
 - **Science & Engineering-related** (1 )
 - **Social and Behavioral Sciences** (28 )