

## AIAD #10851

Research Opportunity (Faculty, Cadet, both): Cadet

### ORGANIZATION/PROJECT SPONSOR

Organization: Army Research Lab / Army Research Office

Organization POC: Dr. Clare Voss, RDRL-CII-IT / Dr. Joseph Myers, RDRL-ROI-M

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Location of Sponsoring Directorate or Division (City, State): U of Pennsylvania, Philadelphia, PA in conjunction with ALC (Adelphi, MD) / ARO (Research Triangle, NC)

### PROJECT

**Title:** SUBTLE (Situation Understanding Bot Through Language and Environment)

**Description:** Fluent and effective communication between warfighters is imperative, to convey orders and intentions and to ensure adequate situational awareness. As autonomous bots move onto the battlefield, they will need to participate in these complex linguistic interactions. Soldiers cannot be asked to compromise their communications for the sake of these bots. Research is underway to bring bots to the soldier's level. Now in its third year, the SUBTLE project has developed a software game testbed to investigate human-robot interaction using English, to support military designers developing human-bot communication methods.

Cadets will be active participants in ongoing tests using the SUBTLE game software to investigate and collect effective communication exchanges between humans, and between humans and bots (avatars in virtual reality), creating a significant experimental corpus of exchanged text messages. Cadets will have the unique opportunity to jump into the software development life cycle to present recommendations to researchers developing or evaluating the software, providing a "reality check" as to how real military users effectively and in real time understand language in the different virtual reality environments.

We envision that summer work could lead to a follow-on senior project.

**ARL/Army Benefit:** This work will support ARO's SUBTLE "Bot Language" MURI<sup>1</sup> in its tool development, training materials, and technology transition to CISD and HRED at ARL.

Given the success of last year's summer project, the USMA cadets will again be

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<sup>1</sup> Dr. Myers is the ARO program manager for the SUBTLE project URL: <http://www.seas.upenn.edu/~muri/> (MURI = Multidisciplinary University Research Initiative). Dr. Clare Voss is a member of the SUBTLE Advisory Board, senior ARL CISD researcher, and partner with ARO in transitioning the project software to ARL.

directly involved onsite at the U. of Pennsylvania with the MURI's game software (for brief overview, see: <http://www.seas.upenn.edu/~muri/y3review/Pragbot2010MURI.pdf>)

**Background Required:** Interest in interactive online gaming, software testing, or natural language processing. Experience in Computer Science, Systems, Communications, or Behavioral Sciences (such as Leadership, Psychology, Linguistics) preferred, not necessary.

**Security clearance required:** None.

**Capacity:** 1-2 cadets

**Duration:** 2-3 weeks

**Block Preference:** Likely all blocks available during summer, preferably with cadets in same block.