Knowledge Base Management Simplified with EZ Vector

Michael Green, michael.a.green85.ctr@mail.mil
Dr. Adrienne Raglin, adrienne.j.raglin.civ@mail.mil
Dr. Douglas Summers-Stay, douglas.a.summers-stay.civ@mail.mil
Dr. Andre Harrison, andre.v.harrison2.civ@mail.mil

Objectives

• Develop a solution for managing a knowledge base that saves time without sacrificing functionality

Background

• ConceptNet – Knowledge base that details semantic relationships between terms

• Vector-KB – Framework that uses semantic knowledge bases for deductive reasoning
  - Returns relevant conclusions based on prior knowledge, or facts
  - Capable of inferring additional conclusions utilizing existing facts

Challenges

• Vector-KB is useful, but management requires prior system knowledge to operate

Solution

• Develop an intuitive graphical interface to simplify Vector-KB management for general use
  - Queries executed via text fields, button and drop-down menus
  - System complexity retained

Features

• Flexible query searching
• Fact management
• Results sorting and filtering
• Import/export variables as files

Discussion & Conclusions

• EZ Vector-KB introduces an automated method for managing a knowledge base system
  - Applicable to numerous domains

Path Forward

• Modify fact management function to adjust answers with inferences
• Apply interface to object detection and Internet of Things experimentation
• Utilizing interface to create a knowledge base specialized for a potential hazard context