**Proposal for a Cognitive Assistant – The Cognitive Research Assistant or CRA :**

**Introduction:**

Towards fulfillment of the Project for COS521, I propose to design a cognitive research assistant (CRA) whose function is to assist in gathering relevant research articles on any specified topic. The idea is for the assistant to gather the relevant material which can then be used by the human participant in the system to further their objectives.

**Functionality:**

The function of the CRA will be to accept a request from the user, ascertain the type of request, perform a search/searches, determine if the selected material is relevant, produce a cache of relevant materials for the user to review at a later point in time and return the result (the cache and a link to it.)

There can be two types of research requests –

1. Serious – academic / professional research
2. Casual – outside of academic pursuit e.g. reviews of products, places etc.

A serious request leads to a search for published research papers/white papers while a casual request will be a more general search on the internet. The systems used for the search may be different.

The results returned will a combination of links, documents/articles or a subset of them. The CRA may also request the user to be more specific if the search results are too large or may return ‘Result not found’ if there are no results.

**Components:**

The CRA system will have the following components –

1. A user interface for communication
2. NLP interpreter
3. Search module for information search and gathering
4. A decision-making module to determine relevance of information gathered to the request made
5. A storage system to store and access results
6. A feedback mechanism to improve performance
7. A user who believes it is worthwhile to use the CRA

**Design considerations:**

The idea is to build an implementation in FOL and provide a blueprint of the UI. Producing a prototype in Prolog or Python or a combination is the eventual goal. But given the time constraints and the magnitude of the undertaking, it may be a partial prototype built to research a single topic and may use a pre-built document DB instead of the internet.

**Future ideas and extensions –**

The idea of a CRA may be able to be developed to produce –

1. An application which can simplify complex concepts and produce many perspectives
2. An application which can explain a concept in an unknown subject using an analogy in a familiar subject
3. An application which can provide the necessary conceptual and/or historical background for the current subject

**Deliverable for Part-1:**

The design approach and details of each component.

**Deliverable for Part-2:**

Implementation of the system.