C-IKNOW Semantic Recommender Demo Script

NOTE: some researchers have incomplete data exposed by selecting them as “Recommendations for” so please show caution for now in unrehearsed queries; stick with “Zhoa, Ping” as the “seeker”.

1. **Before** presentation, load URL in browser
   
   http://ciknow1.northwestern.edu/sw_nucats
   
   …should take you to the “search” page
   
   http://ciknow1.northwestern.edu/sw_nucats/peopleSearch.jsp

2. “For purposes of this demo, say for example, I am Ping Zhou (an Adjunct Assistant Professor, in the department of Biomedical Engineering of the Feinberg School of Medicine at Northwestern University…”
   
   Drop down
   
   **Recommendations for: select Zhou, Ping**

3. “…and let’s say I’m seeking expertise on the human brain.”

   **Recommend experts in:**
   
   Highlight “Search…”, over-write with BRAI, on 4th letter auto-complete kicks in, you can mouse down and select “BRAIN” from the list, or continue typing N.
   
   Click on >> to move BRAIN to the selection list

4. “And let’s say my motivation is to find the absolute most qualified expert (AKA “Self-interest”), regardless of my possible social connections, so we will take the default search template.”
   
   POINT out that **“Most qualified”** is checked.

5. “We will trust in the template so we will not change any of these additional selections. The template operationally defines most qualified in terms of number of publications and citations, and centrality within the citation network.”
   
   Scroll down to bottom of the search page, click on Search button.

6. Should take about 2 MINUTES. Please be patient.

7. “60 experts on the BRAIN were identified, and they are scored and presented. The recommendation is that I (Ping Zhou) contact **Mark Williams**.”

8. “Let’s get an **explanation** of the recommendation. The score is normalized between 0 and 100, and is the average of the normalized scores for the selected criteria, in this case (1) centrality (popularity) in the citation network of articles qualified by the topic “BRAIN, and (2) the number of publications, again among articles qualified by the topic “BRAIN”. Williams was recommended because he is among the three experts with the **highest centrality**, and within the 3-way tie in centrality, has the **most publications** (20) related to the BRAIN.”

9. Scroll down: “By The Way, we also recommend **new collaboration opportunities**. BRAIN experts, from your own organization with whom you have never collaborated on a paper or proposal, were identified, as well as BRAIN experts whom you were co-cited with, but with whom you have apparently never collaborated on a paper or proposal.”

10. We can click on **Why?** To get a **visual explanation** of the recommendation. We see the seeker Zhou and the recommendation Williams, and that they happen to be directly related in that Zhou has cited Williams previously.
11. We can view the citation network more completely by clicking “Show All Nodes” and “Put Nodes in Circle.” We see Williams’ has many “in-links” in the citation network (high “in-degree centrality”).

**NOTE:** IF YOU DO A 2ND SEARCH RE-SELECT the keyword (BRAIN)!

FRIEND OF A FRIEND

Next, let’s say our motivation was specifically to find NEW collaborators.

1. Zhou, Ping
2. BRAIN
3. Scroll through the MOTIVATIONS, check **Friend of a Friend**
4. Scroll down through options, remark on template: The FOAF motivation template is operationally defined as preferring collaborators of collaborators as NEW collaborators. Past collaborators are specifically ineligible to be recommended by Friend of a Friend.
5. Search. Remarks on results: Same (BRAIN) experts identified.
6. Here the experts are ranked by (1) the inverse of their **distance** in the collaboration network, and also (2) directly by the **number** of distinct paths of shortest length (**geodesics**) between the seeker and the expert. A number of qualified BRAIN experts are at remove 2 from our seeker, but only one, Julius Dewald, has the advantage of having TWO paths of length 2 from the seeker to the recommendation.
7. Farther down the list, notice qualified BRAIN experts at distance 1 scoring 0 due to their previous collaboration with Zhou.
8. Clicking Why? We see there is no previous DIRECT relationship between Zhou and Dewald. However, if we hover over the recommendation, we see the system identifies two mutual collaborators of Zhou and Dewald who might arrange an introduction.

BIRDS OF A FEATHER

Homophily.

1. Zhou, Ping
2. BRAIN
3. At MOTIVATIONS, check **Birds of a Feather**.
4. Remark: The BOF template is operationally defined as similarity, which we call homophily. We rate similarity on 4 dimensions:
   a. organizational affiliation
   b. tenure status
   c. gender
   d. co-citation – we consider being cited together as an indicator of similarity
5. Search: Remark on results: (Again same experts identified.) We have a 3-way tie: Wu, Hansen, and Rymer are all similar to the seeker Zhou in terms of at least 3 of our 4 attributes.