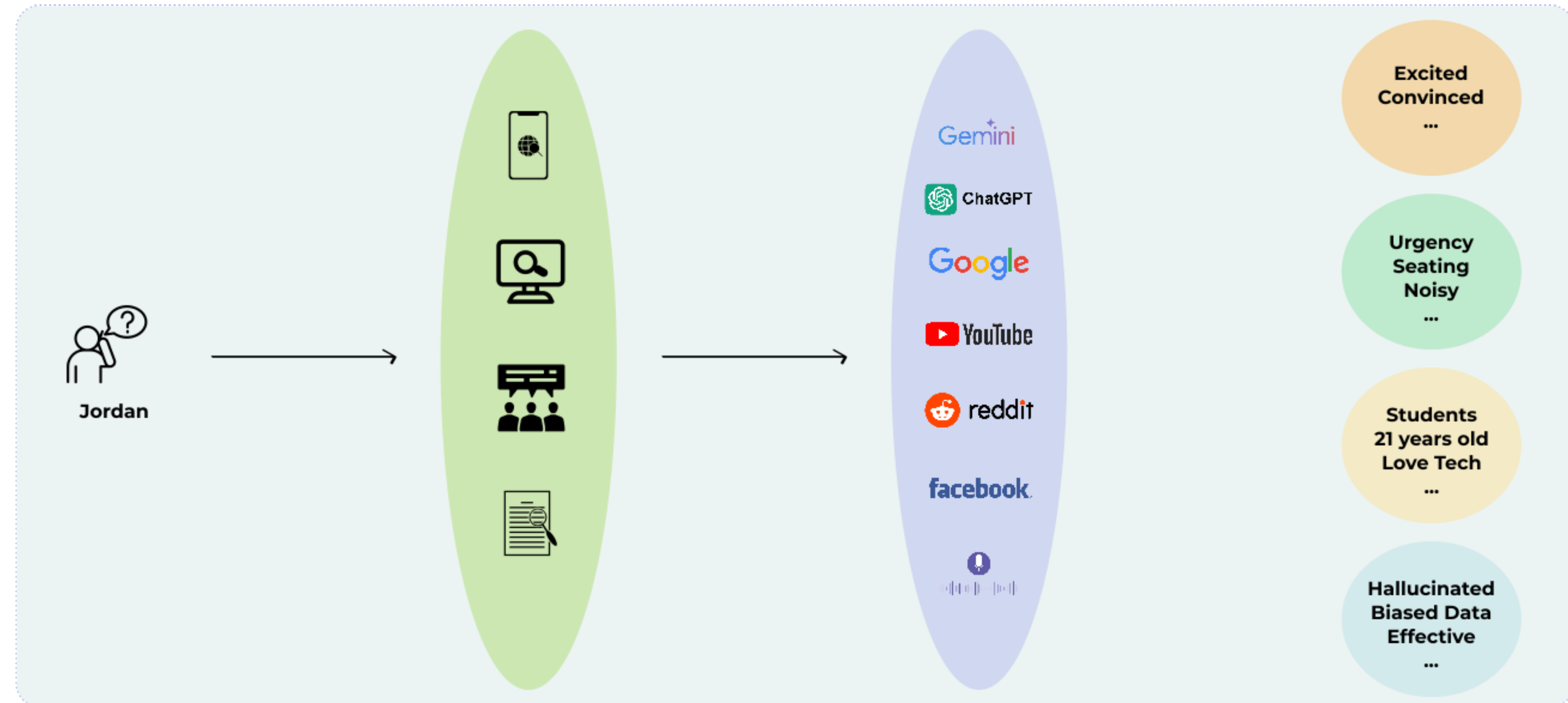


ActiVar: The Activity-Variable Information Retrieval Framework for Characterizing Search in Modern Information Environments

Shuoqi Sun^{1, 2}, Danula Hettiachchi^{1, 2}, Damiano Spina^{1, 2}

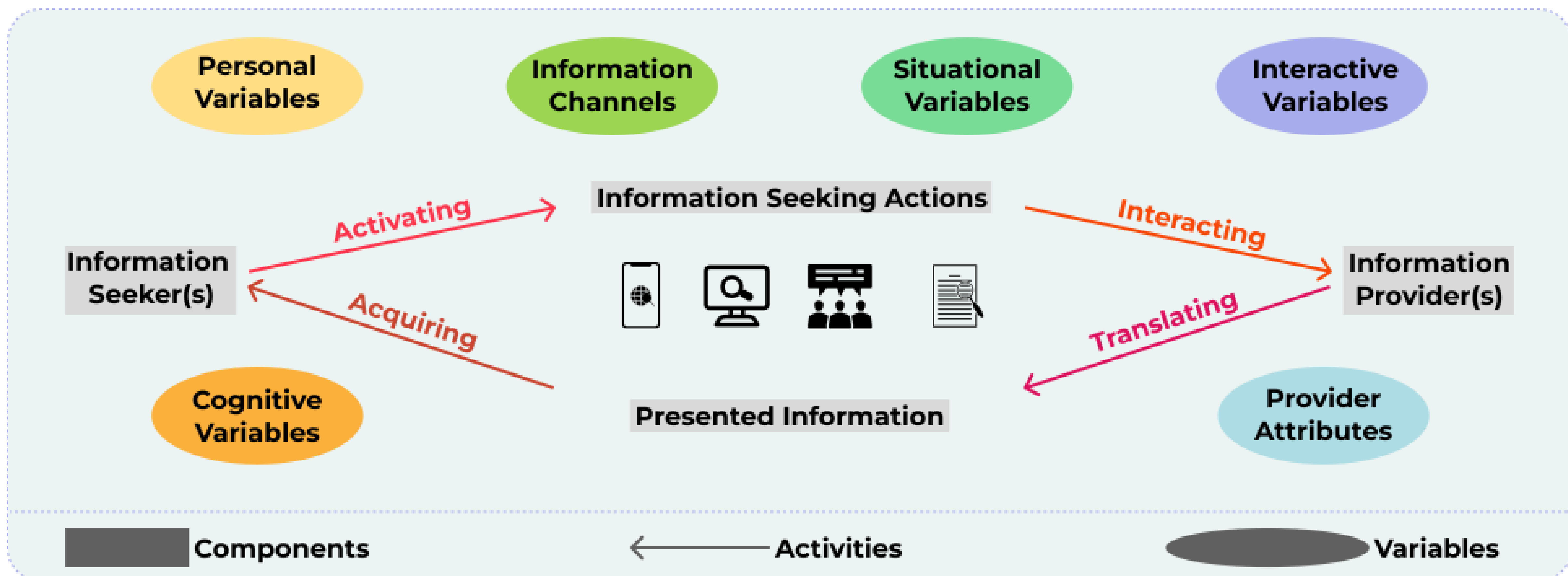
¹MIT University, ²ARC Centre of Excellence for Automated Decision Making + Society

(1) Search Scenario in Modern Information Environments



How can we characterize this journey of finding information in **today's environment**, filled with various **uncertainties** and **"dangers"** that may impact behavior? Such as misinformation generated by humans and AI?

(2) ActiVar Framework



(3) Utility Instance of the ActiVar Framework

Timely Case Study: Investigating and Enhancing User Trust in GenAI Summaries - Google's AI Overviews.

- **Problem:** Users distrust AI summaries due to concerns about the **hard-verified source credibility**.
- **Experimental Design:** A controlled lab study manipulating the **Interactive Variable** (adding UI indicators to represent the credibility of the references) to measure its impact on **Cognitive Variables** (users assessing the source quality) during **Acquiring** and subsequent **Activating** behavior (i.e., if users continue to search on the same topic), with considering for **Personal Variables** (e.g., expertise).
- **Checklist:** Revealed by the ActiVar, **control over confounding variables is essential**, including situational variables (lab setting), Provider Attributes (manipulated dataset), and Information Channel (same device).
- **Informed Research Question Examples:**
 1. Do credibility indicators reduce the likelihood of users immediately re-engaging in another search?
 2. Is this reduction of re-engaging stronger for users with low domain expertise?
 3. Do these indicators significantly increase cognitive load, making them impractical?

Acknowledgment: This research was conducted by the ARC Centre of Excellence for Automated Decision-Making and Society (CE200100005) and by the Australian Government through the Australian Research Council.