Empirical Methods in AI Research

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Human Centered Artificial Intelligence

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Case Study 1

“ Carol is a researcher interested in investigating the viability of speech recognition as an alternative method of text entry. Carol wants to add the functionality to the existing user interface, thus, addressing the limitations of keypress input. Based on the literature review, Carol’s intuition is that there exists a relationship between keypress and voice based input interfaces that can be used to enhance user performance and satisfaction. This relationship may be complementary in nature; like speech user interface (SUI) together with traditional graphical user interface (GUI) can enhance user performance and satisfaction.

Design an experiment to verify this

Designing a Controlled Experiment

- Define a Research Question
  - Hypothesis
  - Null Hypothesis
- Participants
- Ethical considerations
- Designing an experiment:
  - Dependent, Independent and Confounding Variables
  - Within Subject and Between Subject Design
- Apparatus / Material
- Analysis Method

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Experiment Design Problem 2

“Jane is a new graduate student interested in the effectiveness of a novel fisheye-view file navigator. Her research is motivated by the fact that navigation is a primary activity of software developers requiring a lot of scrolling and many clicks to find files. ‘Fisheyeviews’ use a distortion technique that, if applied correctly, display information in a compact format that could potentially reduce the amount of scrolling required. Jane’s intuition is that the fisheye-view file navigator is more efficient for file navigation, but critics argue that the more compact information is difficult to read and that developers will not adopt it over the traditional file navigator. Her research goal, therefore, is to find evidence that supports or refutes her intuition that fisheye-view file navigators are more efficient than traditional file navigators for navigation.”

Thank you