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Capstone Deliverable 2: Annotated Bibliography

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Annotated Bibliography

**[1] A. A. Azeta, C. K. Ayo, A. A. Atayero, and N. A. Ikhu-Omoregbe. 2009. A**

**Case-Based Reasoning approach for speech-enabled e-Learning system. In 2009 2nd International Conference on Adaptive Science Technology (ICAST), 211–217. DOI:https://doi.org/10.1109/ICASTECH.2009.5409721**

The paper above presented by professors of the College of Science and Technology, Nigeria, seeks to present a speech-based e-learning system, especially in the attempt to address the issue e-learning platforms have with regards to usage by visually impaired learners and dyslexia. The paper does well in analyzing the practicality of speech-enabled systems in various fields such as financial and health institutions. It also presents an overview of a working Voice User Interface (VUI) system design consisting of its pseudocode, flowchart, architecture, which inform my project substantially since I desire to design a VUI system for trading in Ashesi University.

However, the system seeks to complement existing platforms and does not provide an overview of exactly how the integration with the platforms works. Another thing the paper fails to do is, provide a platform for future works, for those who may want to advance VUI’s for e-learning.

**[2] S. Gamm, R. Haeb-Umbach, and D. Langmann. 1996. Findings with the design of a**

**command-based speech interface for a voice mail system. In Proceedings of IVTTA ’96. Workshop on Interactive Voice Technology for Telecommunications Applications, 93–96. DOI:https://doi.org/10.1109/IVTTA.1996.552769**

Speech recognition is a relevant area of Natural Language Processing as well as my project. The paper above provides an outline of the design of a command-based speech interface and the benefit of voice control over touch-tone control. The authors implemented the speech interface with integration with a voicemail in a top-down approach. This top-down approach implementation of a speech system provides another view of implementing a speech interface I can consider in implementing my project. Also, there was user testing to improve the system design as well as design goals in general, which would aid me in designing similar goals for better versions of a system for my project.

The paper fails to acknowledge a wide range of existing related works and research in NLP and thus, questions the validity of the proposed design. Plus, the paper did not present a graphical or architectural view of the system to provide clarity on the implementation of the system. However, the paper does well in drawing connections from different concepts to present a unique design.

**[3] S. Guang-li, H. Wei, and L. Ji. 2011. Improved VUI system based on maintenance**

**device. In 2011 International Conference on Computational Problem-Solving (ICCP), 510–513. DOI:https://doi.org/10.1109/ICCPS.2011.6092247**

This paper proposes a design of an improved Voice User Interface (VUI) system based on maintenance device which comprises a speech recognition system, a menu system, and a module update system. The paper elaborates on the process of transforming into electronic documents and how a VUI system can automatically choose corresponding texts based on speech broadcast. The research provided in this process would be useful for knowing the various steps involved in processing speech to text and vice versa during my project. The advancement of the system this paper proposes compared to traditional VUI's emphasizes on how the system can rapidly adapt to different kinds of environments to increase recognition and anti-noise capability. This advancement can be something to look into considering the effect it may have on the VUI, I build.

The paper even though a technical document, uses a lot of NLP-related and engineering terms of which are not explained in the document. Hence, the research to understand these terms in the document alone is ample. However, the paper does well in providing architectures and flow charts to emphasize the expansion the new system provides.

**[4] H. Isahara. 2007. Resource-based Natural Language Processing. In 2007**

**International Conference on Natural Language Processing and Knowledge Engineering, 11–12. DOI:https://doi.org/10.1109/NLPKE.2007.4368002**

This paper generally presents, much research regarding the concepts of NLP and the use of linguistic resources and high-quality language analyzer to develop practical systems. Thus, the paper is necessary as it informs my knowledge-base on NLP as a field in computer sciences and engineering and implementing my project. The paper presents detailed levels of approaches to making NLP systems as close to human as possible. These various levels would give a fair idea of how close I could make my system be to the human.

The paper does well to provide an organized flow of understanding resource-based Natural Language Processing. However, it uses too many complex phrases and other borrowed technical concepts that the author does not explicitly explain in the paper. Also, the connections between concepts discussed in the paper and other concepts in the NLP field generally, were not made clear in the paper and thus seem as, completely different ideas.

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**[5] R. Rogoff. 2001. Voice activated GUI-the next user interface. In IPCC 2001.**

**Communication Dimensions. Proceedings IEEE International Professional Communication Conference (Cat. No.01CH37271), 117–120. DOI:https://doi.org/10.1109/IPCC.2001.971556**

The author of this paper believes that voice activation is the future. Using commands in our daily lives would become a norm shortly. She considers how voice activation could impact various aspects of one's life and job. The paper explicitly outlines the potential of voice activation and most importantly the hardware and software resources needed for it. Provides an idea of the resources both hardware and software, I would need to implement my VUI system. It also provides different implementations of voice-activated GUI and makes necessary comparisons. It would help me in implementing a project that takes the combined strengths and varies the weaknesses of specific approaches.

The paper does well to introduce the engineering concepts such as voice-activated GUI discussed in the paper. It also uses real-life examples to explain the practicality of certain concepts for easy understanding. However, the paper fails to acknowledge the works of others and provide a space for future works.