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ECE-395A: Senior Electrical Engineering Projects

Final Report Outline: Audio Source Separation

1. Abstract

- Improved and updated version of the abstract that we previously wrote in the beginning of the semester. Summarizes what the problem is and how we solved it

2. Table of Contents Page

- A simple table of contents for the report that will have the sections that are detailed in this outline

3. Introduction

- Introduces the project, describes the problem statement, our motivation behind doing this project, our goal for the semester and for the year, etc.

4. Related Works

- Discussion of other projects and research papers that have approached the Cocktail Party Effect with either using neural nets or without using deep learning
- Discussion of Frank Longueira's implementation, as it is the backbone of our project
- How these research papers have influenced us in our path we took

5. Deep Learning (Will have diagrams)

- Discuss the reason behind utilizing a deep learning approach
- Describe the neural network architecture and techniques used for the model
- Discuss the improvements made from the initial implementation

6. Real-Time Signal Processing (Will have diagrams)

- Talk about the basics of signal processing for speech
- Discuss SNR, speech enhancement methods
- Detail how we went about real-time signal processing

7. Hardware

- Discuss the hardware decisions, advantages and disadvantages
- Possible next steps or hardware changes needed to further improve the project
- End to end functional block diagram of the project

8. Conclusion

- Brief summary of the project and what we accomplished
- Obstacles faced and lessons learned
- Next steps, plan for the next semester

9. Acknowledgements

- You already know how we are already thankful for the one and only Sam Keene
but other shout outs will happen here

10. References