Developing Effective Data Analysis for Speech Pathologist

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Abstract
The CDC estimates that each year around 7000 children are born with cleft palates. These children often go through reconstructive surgery, yet still suffer setbacks in their verbal development due to the nature of their condition. Failure to develop proper speech skills can lead to the development of social and emotional issues later in life. The mobile application Speech Adventure seeks to provide a supplement to speech therapy following surgical correction of cleft palates through a speech therapy game, and collection and processing of diagnostic data. Speech Adventure, through the implementation of data visualization, seeks to provide robust and easy to use statistical analysis tools to speech pathologist for use in treating individuals with cleft palates.

Motivation
Children with cleft palate often find it difficult to engage in at home speech therapy due to its similarity to homework and/or its inability to engage in fun interactive manners with users. The goal is to build an application to be used in conjunction with traditional speech therapy, that provides at home therapy games to children while simultaneously collecting data about the patient’s performance.

Application Goals:
- Game Play
- Speech Recognition
- Data Analytics

Advancement
Previous development had focused on developing a robust engine on which to base speech recognition and game driving tasks. Up until now development had been focused in these two areas and had yet to take on any of the issues associated with data collection.

Developmental Advancements
Through the implementation of open-source data visualization, the advancements seek to present large amounts of diagnostic data in a simple and easy-to-use interface. Furthermore, by correlating user interaction with clinical diagrams the application is now able to present data in a way that is more conducive to the end-user.

- Implementation of CorePlot Framework
- Implementation of functionality in data visualization
- Development of Speech Pathologist centered data tools
- Development of data collection protocols
- Design of graphic data representation
- Fluid interactions between labels and data

Post Development Overview
- Data is now correlated with anatomical models.
- Data is now more easily accessible to speech pathologist
- Automated data collection has been streamlined

Contact Information
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