

ABSTRACT

Development and Evaluation of Jamaican Creole Synthetic Speech Using Cluster Unit Selection

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The use and value of synthesized speech and applications based on synthetic speech to provide and enhance basic yet crucial daily functions is widespread and continues to increase at a very steady pace.

In this thesis, we propose to create quality, domain-specific Jamaican Creole synthetic speech through the adaptation of cluster unit selection speech synthesis technique. The multi-lingual open source Festival Speech Synthesis framework developed at the Centre for Speech Technology Research, Edinburgh Speech Tools and Festvox Tools were used to accomplish our synthetic voice building objective. The selected variety of the Jamaican Creole language used within the speech corpus is based on an Eastern variety of the language, with the target domain being in-car street level voice navigation.

We validate the success of this pioneer Jamaican Creole synthetic voice building through the use of objective and subjective assessments and also put forward a benchmark for Jamaican Creole synthesized speech. We present the results of the evaluation of *navi*, specifically in relation to the (i) overall quality, (ii) intelligibility, (iii) acoustic accuracy, (iv) functionality, (v) acceptability and (vi) appropriateness of the voice built.

Keywords: Dahlia Marie Thompson; *navi*; navigation; Jamaican Creole; Speech Synthesis; Text-to-Speech Synthesis; Concatenative Speech Synthesis; Unit Selection; synthetic speech; Festival; Festvox; open source voice creation toolkit.