

#Word Embeddings
#Neural Networks

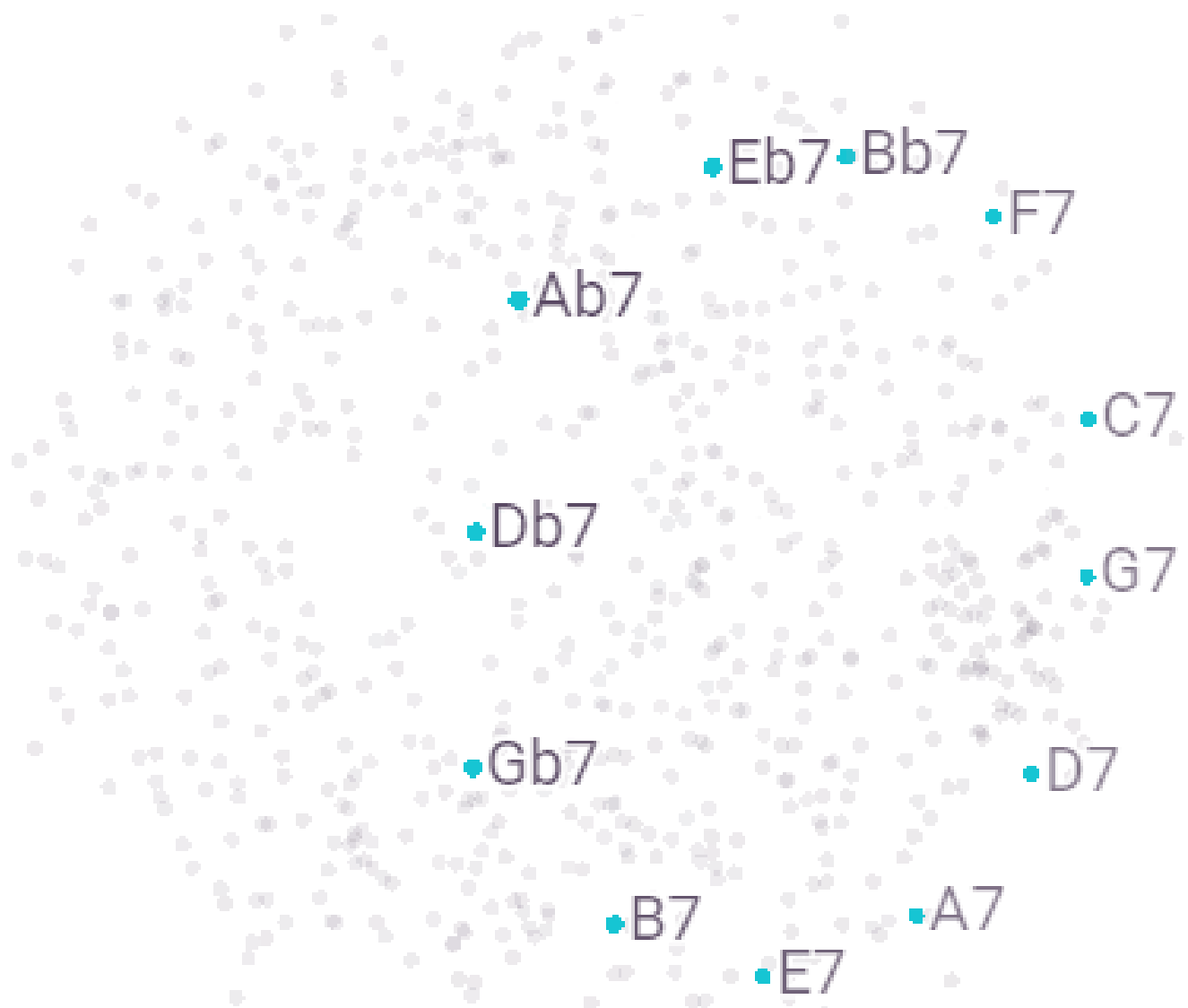
Jazz Chords Generation

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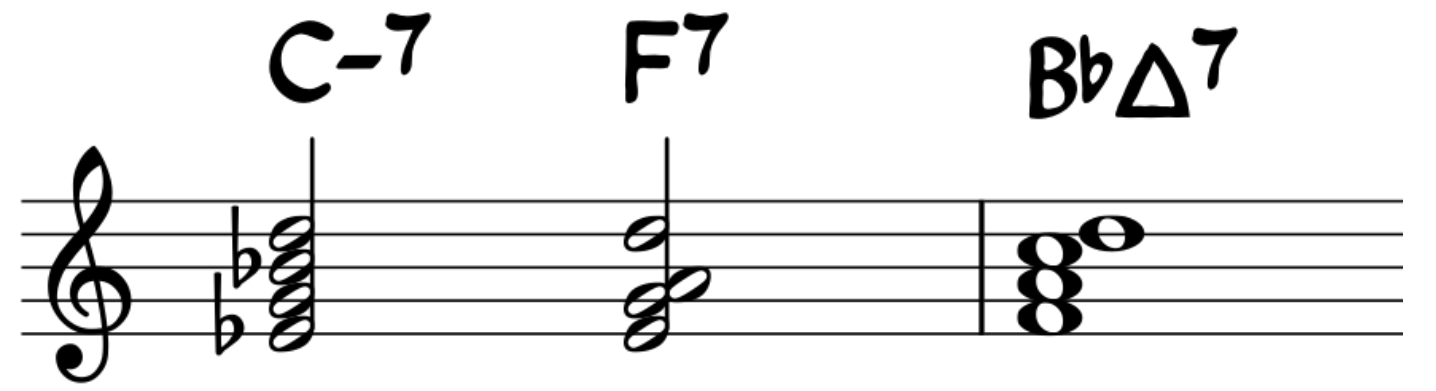
2. Embedding

To represent chord symbol in a numerical form I've used **word embeddings** widely known from NLP. I've tested **Word2Vec**, **FastText** and **Multi-Hot** representations. In a visualisation of chords embedding, which dimensions were reduced by PCA, a musical **Circle of Fifths** appeared. I've chosen **Word2Vec Skip-Gram** model.



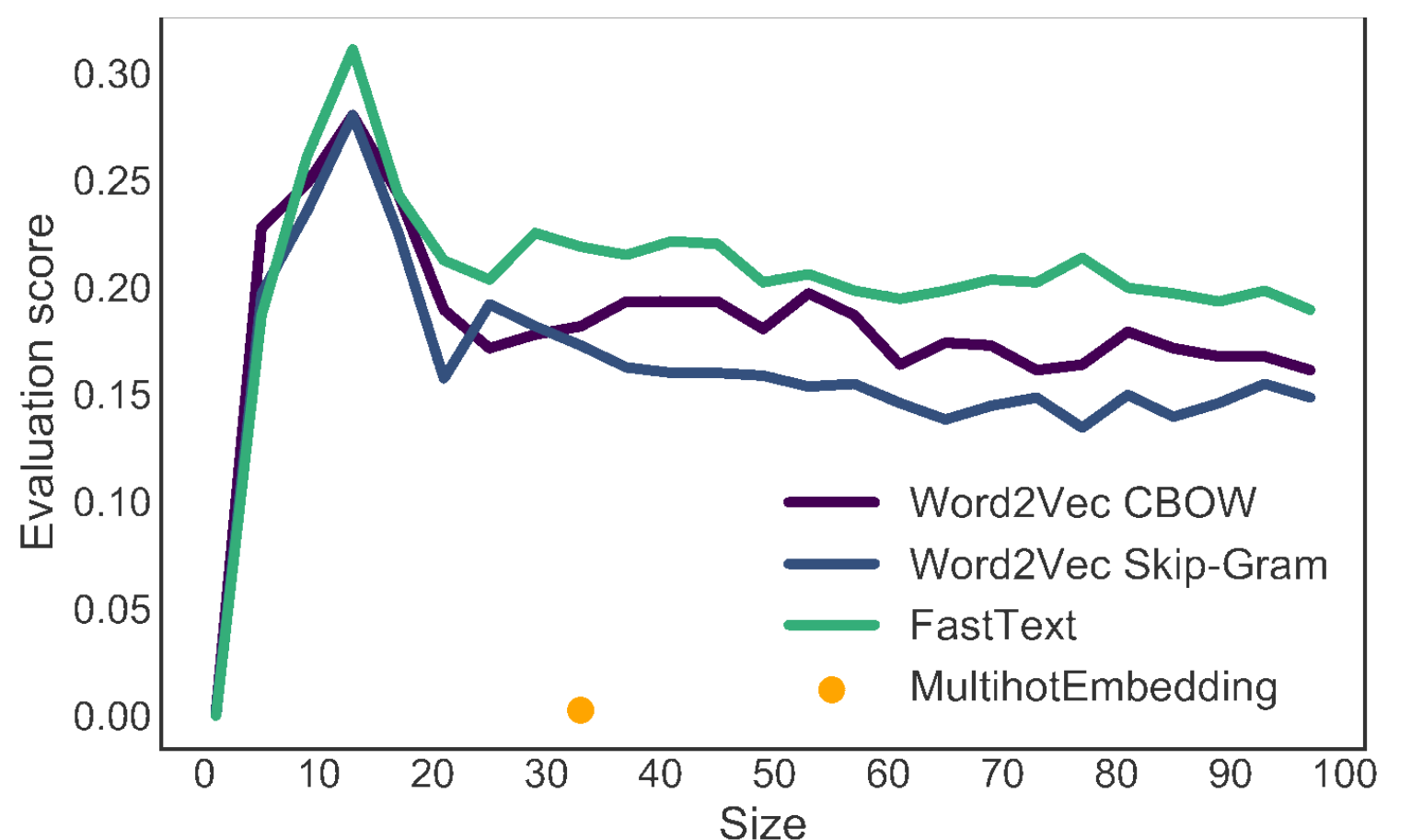
4. Generating Jazz Song

I've created an **application** that helps composers to choose a chord based on history. This is an example* of a **jazz song generated** with my application. Scan the **QR code** to listen to the song.



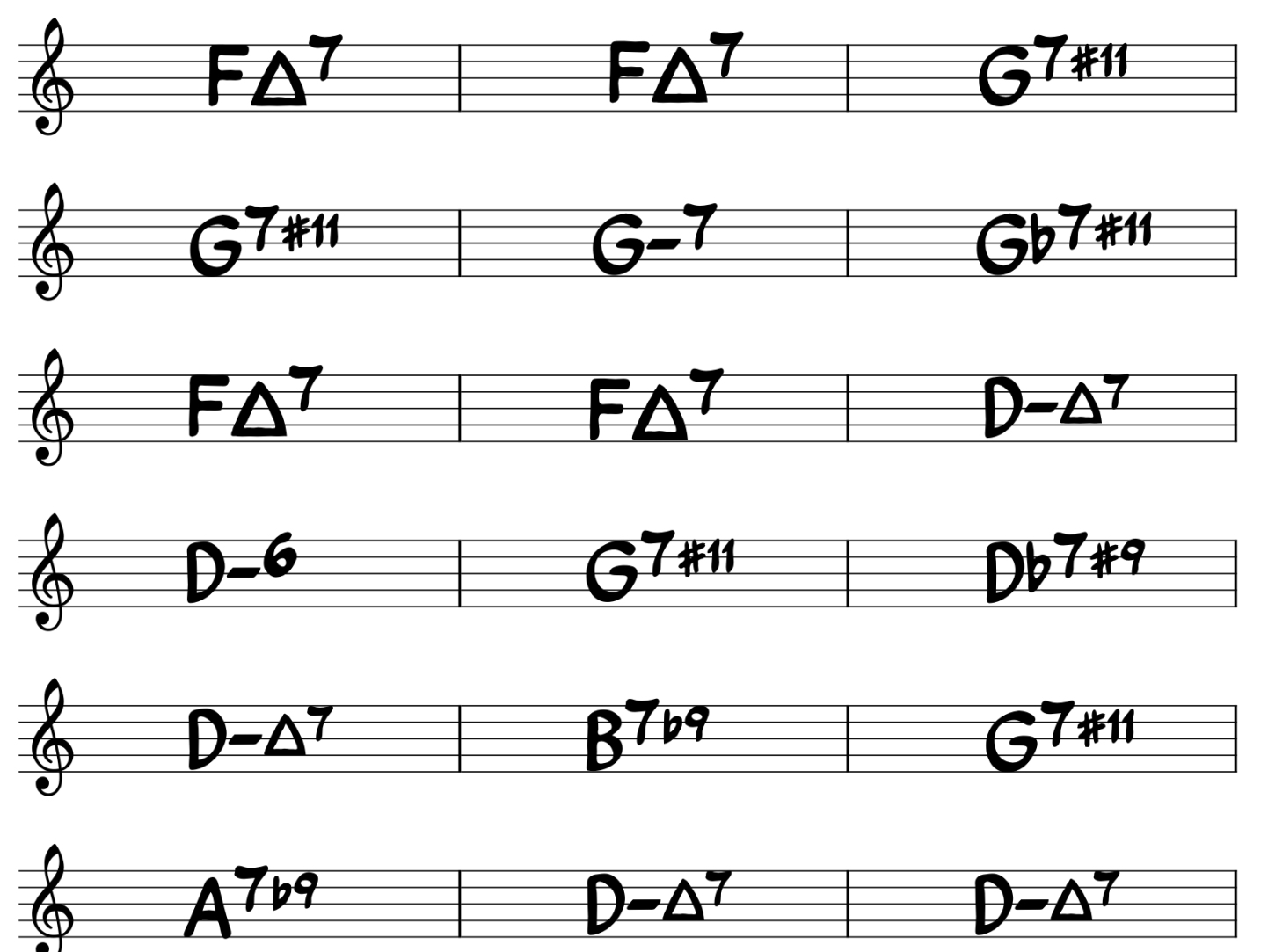
1. Jazz Chords

The aim of this project is to create an algorithm capable of creating **chord progressions** based on jazz harmony. To train the model I've used over 2000 jazz standards downloaded from **iRealPro** website and extracted chords sequences.



3. Neural Network

To generate chords I've tested several **Recurrent Neural Networks**, which predicts next chord based on previous chords. Before training the model I've **encoded chords progressions** using selected embedding. Finally I've chosen 4-layer **GRU-based** Deep Neural Network.



*I have used jazz song Girl From Ipanema to initiate the model.