

Deep Music



James Owers – james.owers@ed.ac.uk
Amos Storkey – a.storkey@ed.ac.uk

CDT Data Science

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Spoiler Alert!

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Music industry worth
£3.5 billion¹



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¹<http://www.ukmusic.org>

Spoiler Alert!

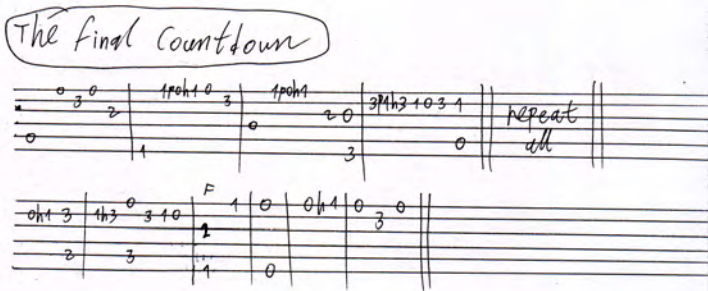
Music industry worth
£3.5 billion¹



¹<http://www.ukmusic.org>

Transcription

The Final Countdown



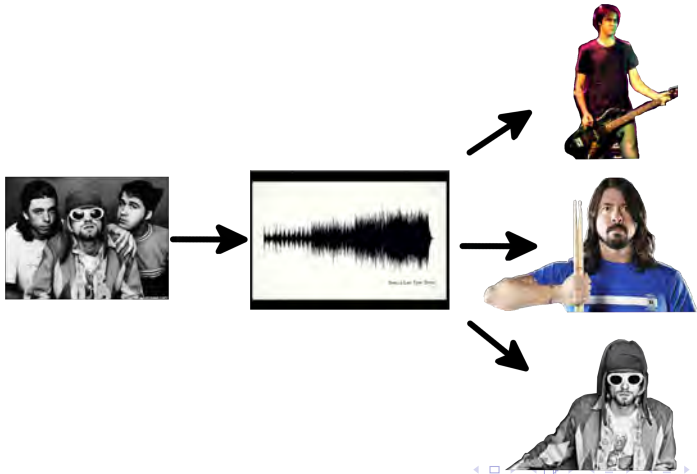
Handwritten guitar tablature for the song "The Final Countdown". The notation includes fret numbers (0, 1, 2, 3) and chord symbols (F). The first staff has a circled title "The Final Countdown" above it. The second staff has a circled "F" above it. The tablature includes various fret numbers and chord symbols like "F" and "1 0".

this arrangement & tab © LickRiff.com

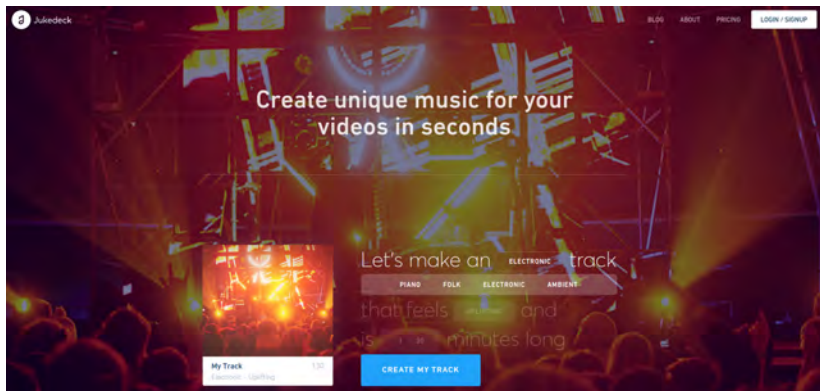
Recommendation



Source Separation

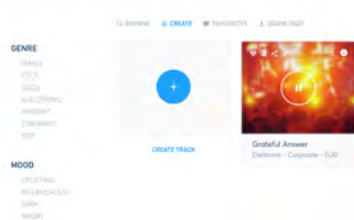
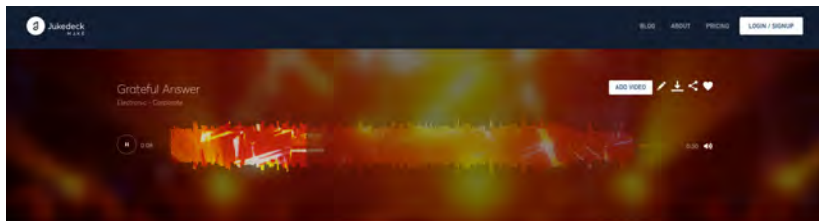


Generation



The screenshot shows the Jukedeck website interface. At the top left is the 'Jukedeck' logo. On the top right are navigation links for 'BLOG', 'ABOUT', 'PRICING', and 'LOGIN / SIGNUP'. The main heading reads 'Create unique music for your videos in seconds'. Below this, there is a section titled 'Let's make an ELECTRONIC track' with a dropdown menu showing 'PIANO', 'FOLK', 'ELECTRONIC', and 'AMBIENT'. The text continues: 'that feels [blank] and is [blank] minutes long'. A blue 'CREATE MY TRACK' button is visible. In the bottom left, there is a 'My Track' section showing 'Electron - Stuffing' with a '1:30' duration. The background is a dark, vibrant image of a concert stage with bright lights and a crowd.

Generation



Data Advantage

“Music is a world within itself
with a language we all understand.”

— Stevie Wonder, Sir Duke

Compositional

Mary had a little lamb



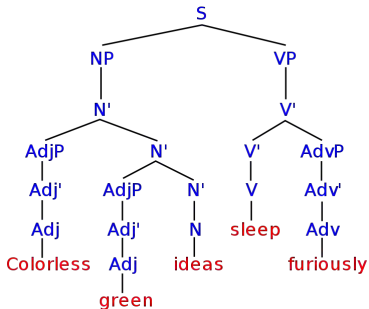
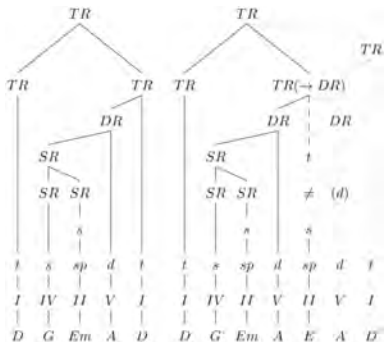
Image: Am Weiser, Deviant Art

Compositional

Mary had a little lamb \neq A little lamb had Mary



Syntactic



The Brain

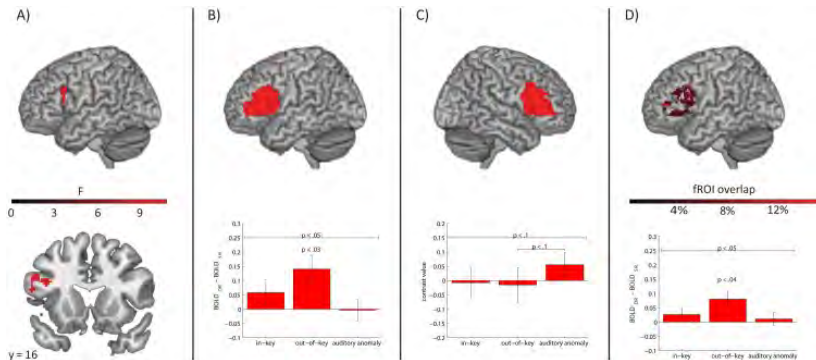


Figure : (Krunert 2015) Music and Language Syntax Interact in Brocas Area: An fMRI Study

Tonal Languages

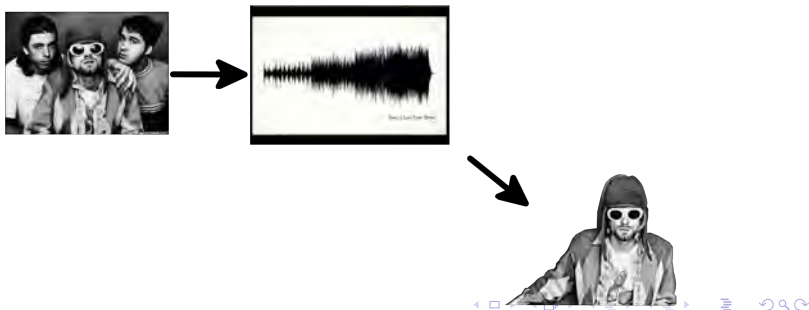
Tone	Word	Chinese character	English meaning
1	mā	妈	mother
2	má	麻	hemp
3	mǎ	马	horse
4	mà	骂	reproach

Figure : Speaking in Tones, Diana Deutsch, Scientific American Mind 21, 36 - 43 (2010)

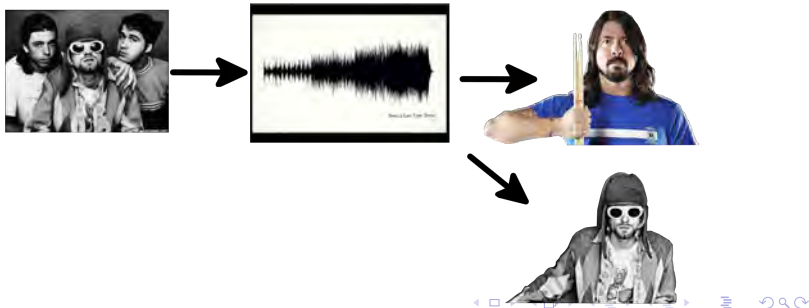
No Features



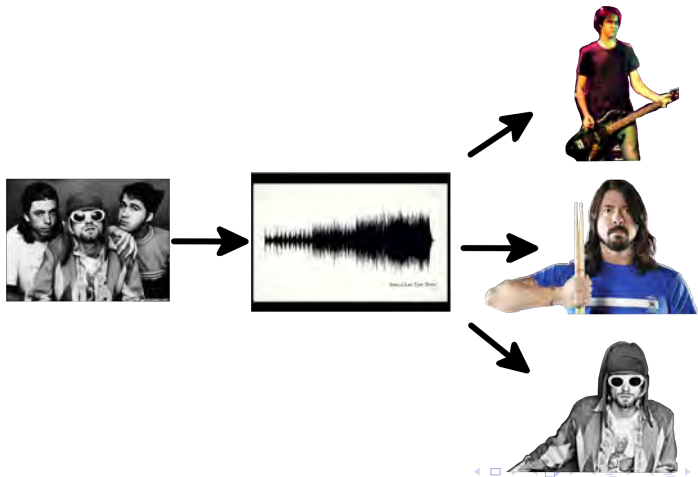
Source Separation



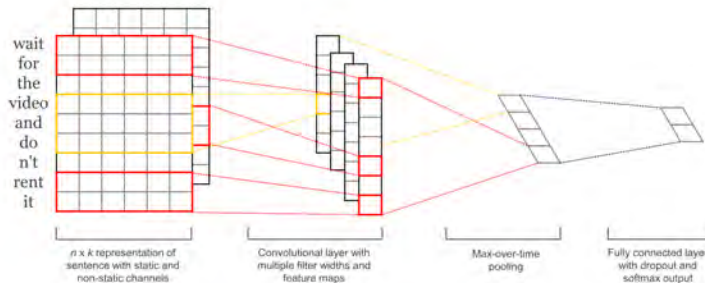
Source Separation



Source Separation

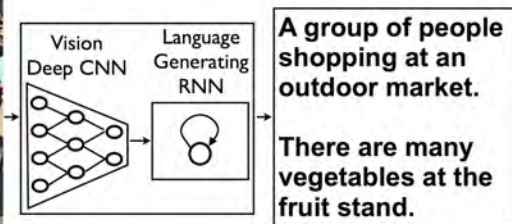


Sentiment Analysis

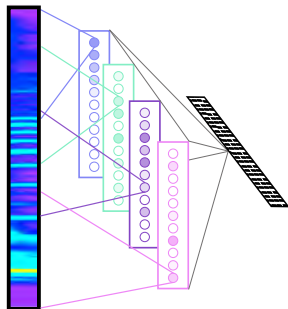
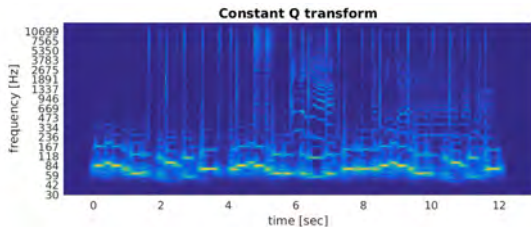


Kim, Y. (2014). Convolutional Neural Networks for Sentence Classification

Deep learning dominance?

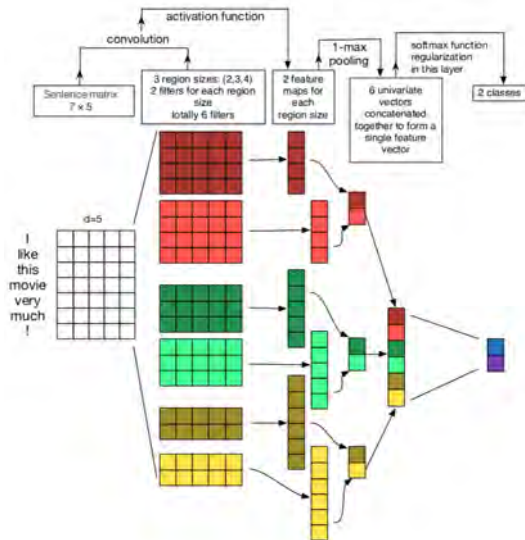


Google Research 2014



Thank you!

Thank you for listening!



Zhang, Y., &
Wallace, B.
(2015)