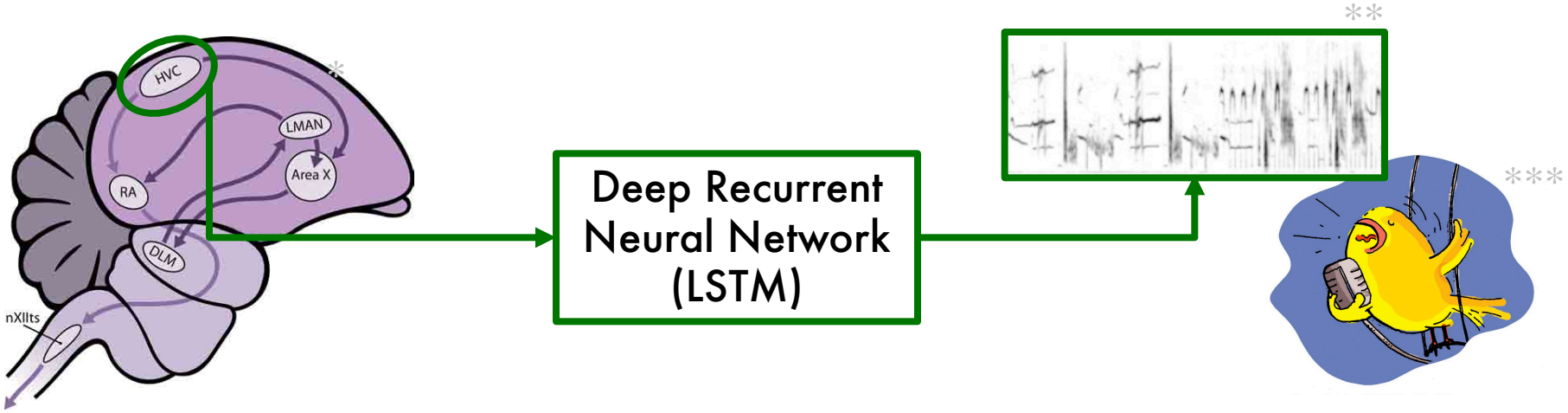
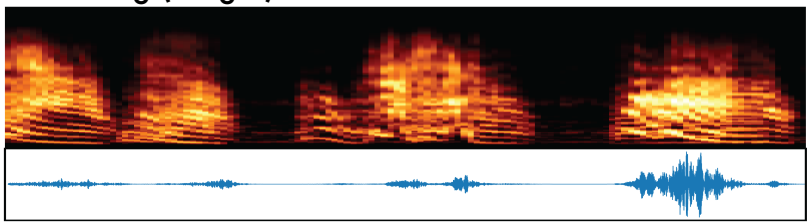
A BMI to Decode Songbird Vocal Outputs from Neural Activities

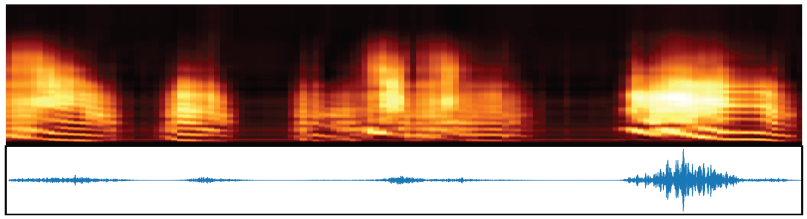
Kai Chen
UC San Diego



Real Song (Target)



Predicted Song (Reconstruction)



Future Directions:

1. Define a perceptual error function
2. Design new architecture to have longer memory
3. Optimize network for real time analysis

*Nottebohm F (2005) The neural basis of birdsong. PLoS Biol 3(5): e164
**Gentner, T. Q. (2008). Temporal scales of auditory objects underlying birdsong vocal recognition. The Journal of the Acoustical Society of America, 124(2), 1350–1359. http://doi.org/10.1121/1.2945705
*** https://www.toonpool.com/cartoons/singer_42583

Goals at the Summer Institute

Kai Chen
UC San Diego

1. Learn to optimize complicated processes (model fitting!) and be more efficient
2. Have a better understanding of deep learning models
3. Improve my data management habits and curation skills
4. Meet people working on interesting projects