

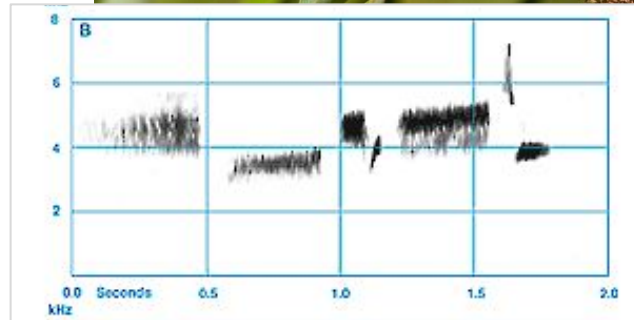


Bird Audio Classification

Casey Bruns 08.27.2019

Agenda

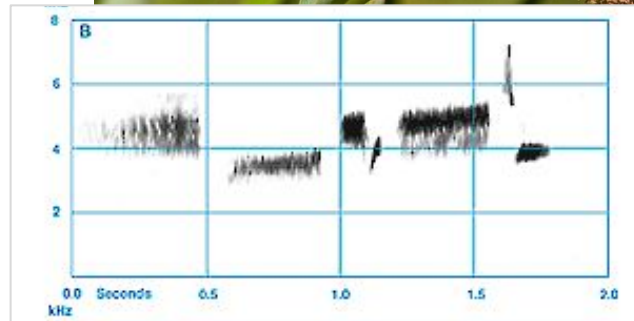
1. Background
2. Process
3. Results
4. Next Steps



Golden-cheeked Warbler
[image source](#)

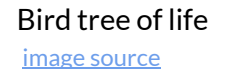
Agenda

1. Background
2. Process
3. Results
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Golden-cheeked Warbler
[image source](#)

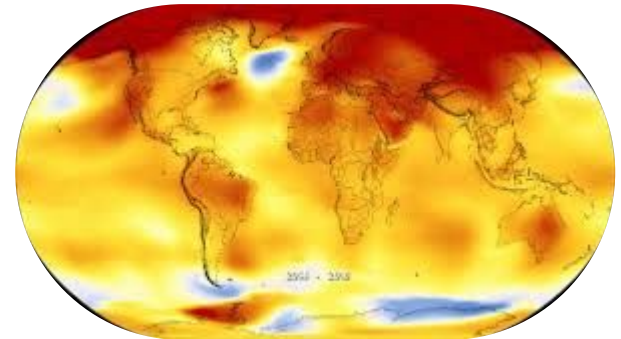
- Well studied
- Diverse
- Ancient



Background – Bird Communication



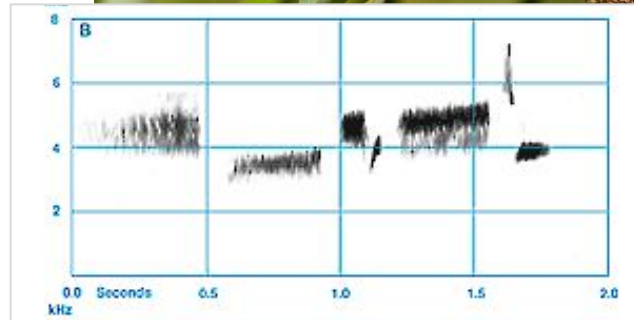
Background – Who Cares?



[NASA Climate Change: 1880-2018](#)

Agenda

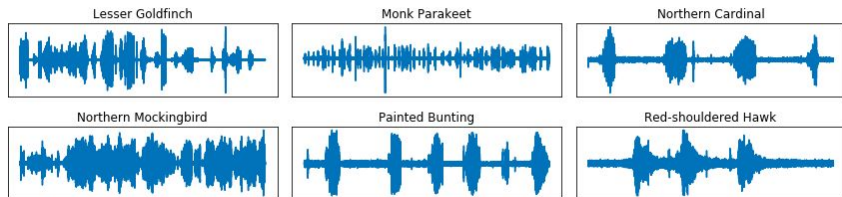
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Golden-cheeked Warbler
[image source](#)

Process

Time Series

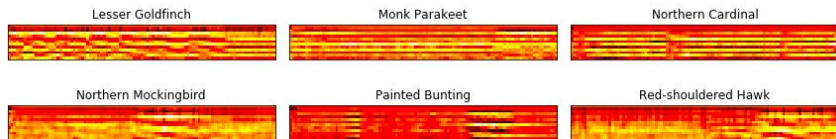


Modeling

4

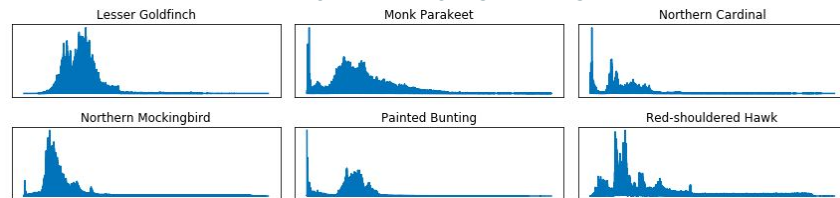
3

Mel Frequency Cepstrum Coefficients



1

Fourier Transforms

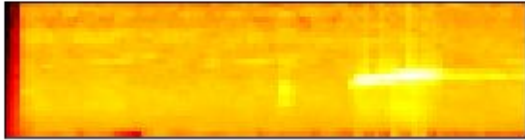
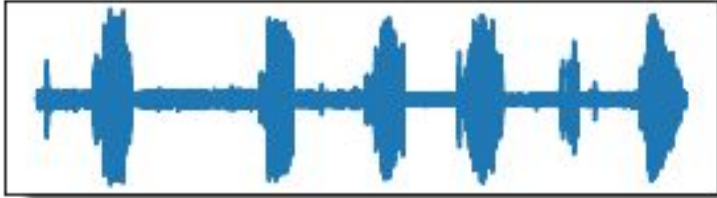


2

Filter Bank Coefficients

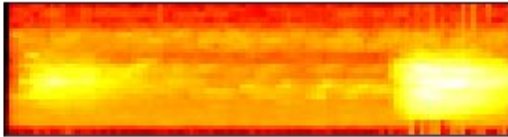
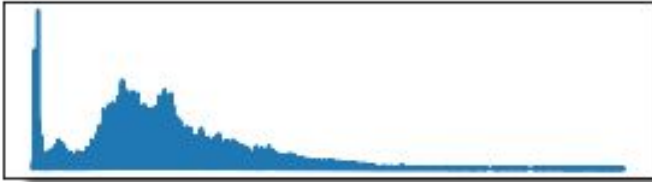


Time Series



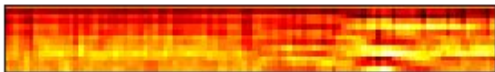
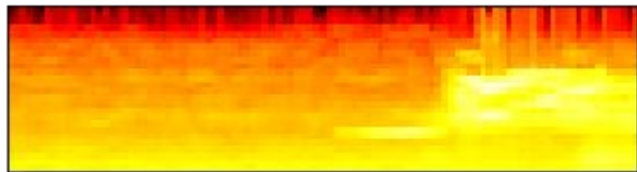
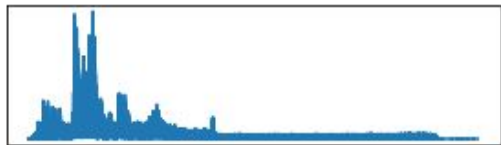
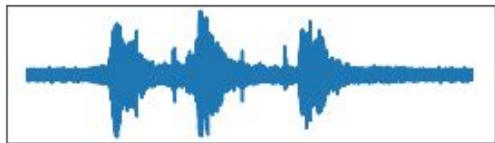
Painted Bunting

Fourier Transform



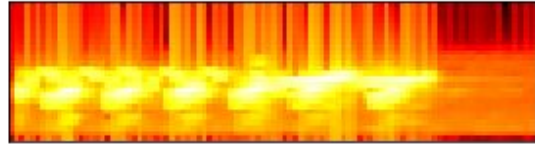
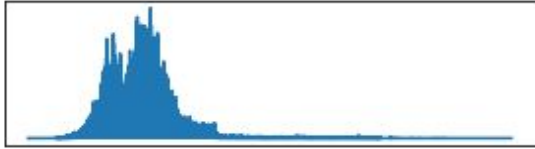
Monk Parakeet

Filter Bank Coefficients



Red-shouldered Hawk

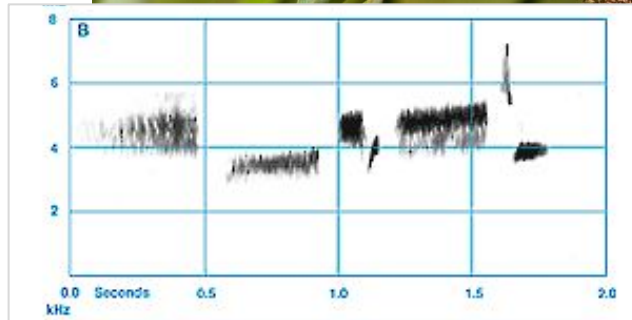
Mel Frequency Cepstrum Coefficients



Lesser Goldfinch

Agenda

1. Background
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Golden-cheeked Warbler
[image source](#)

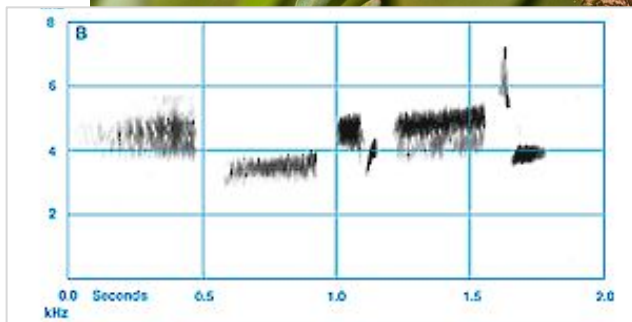
Results

- Trained on just 10 species
- 67% accuracy



Agenda

1. Background
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Golden-cheeked Warbler
[image source](#)

Next Steps

- All N. American species + noise (and other common misclassifications)
- Application
- Acoustic Adaptation Hypothesis



Song**Sleuth**