

# MIDI LevelUp

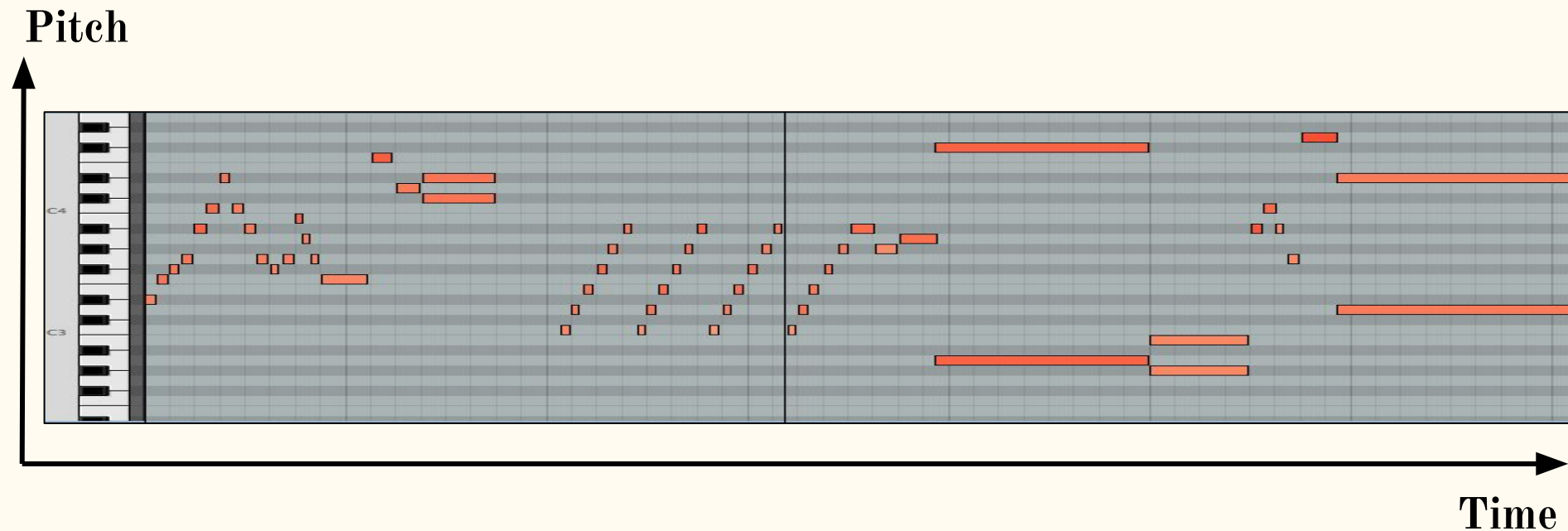
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By John Gilling

Can a computer  
generate  
meaningful  
music?

Can a computer  
~~generate~~ augment  
meaningful  
music?

# MIDI: Musical Instrument Digital Interface



# Tools

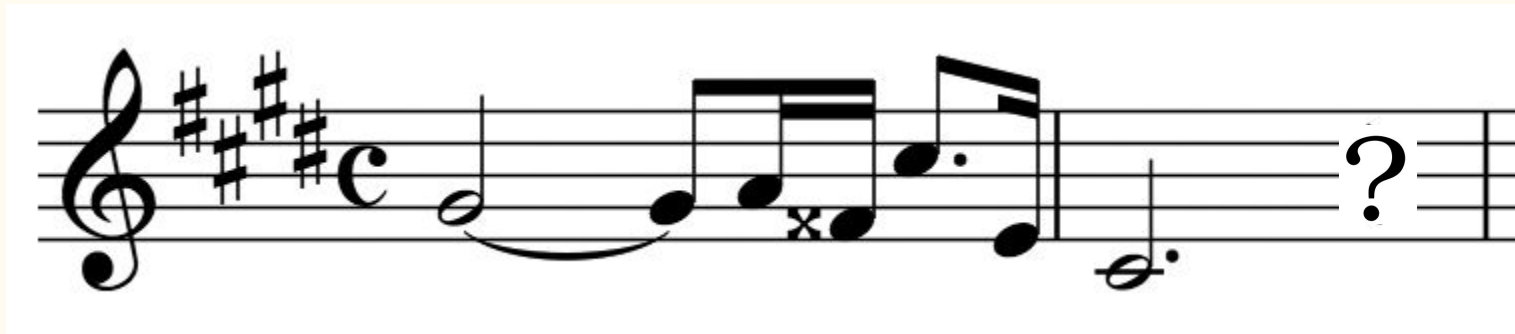


*Beautiful Soup*



# Markov Models

Main Idea: Given the “current state” of a piece of music, can we determine the probability of any given “next state?”



## Melodies



## Rhythms



# Melodies

Pitch  
↑



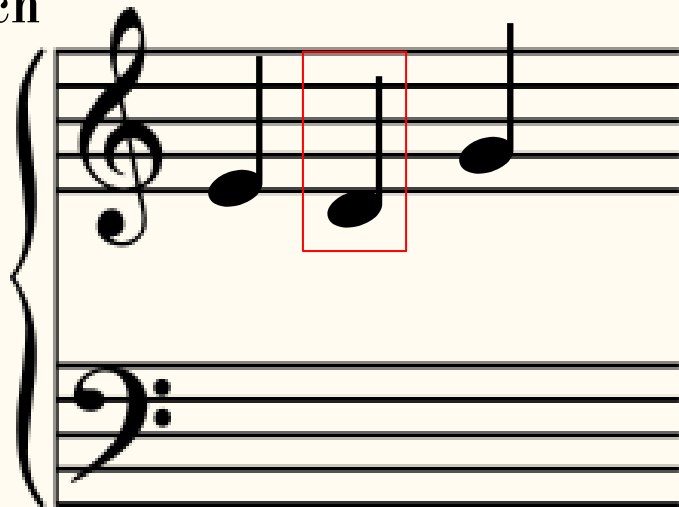
# Rhythms





# Melodies

Pitch  
↑

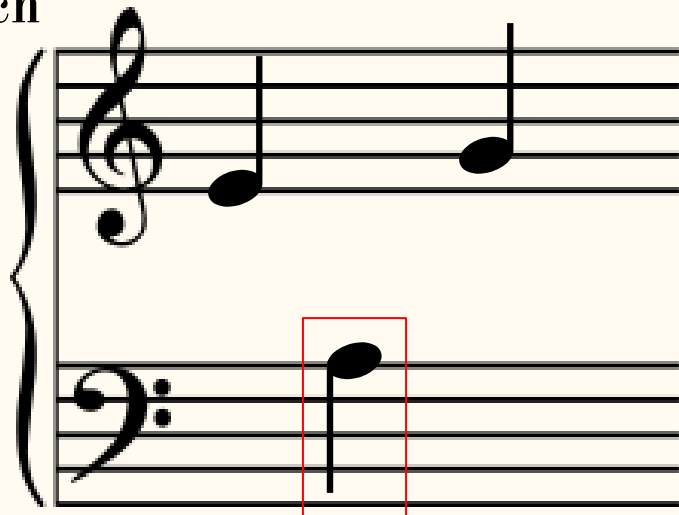


# Rhythms



# Melodies

Pitch  
↑



# Rhythms



# Melodies



# Rhythms



Time →

# Melodies



# Rhythms



Time

## Melodies



## Rhythms



**MIDI LevelUp**

# Next Steps

- Train on individual musicians' performances.
- Consider more domains (time signature, tempo changes, dynamic shifts).
- Interface with musical hardware (real pianos!) or with written scores.

**Thanks for coming!**

**MIDI LevelUp Source Code:**

**[http://www.github.com/suddensleep/midi\\_levelUp](http://www.github.com/suddensleep/midi_levelUp)**

**Contact me:**

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