

Research questions

Experiments

Dejavu

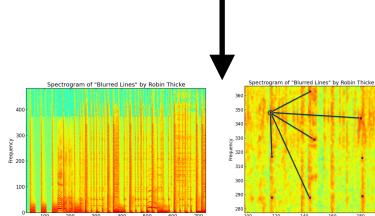
Future Works  
Dejavu

Future Works  
Benchmark

## Research Questions

1. How does Dejavu perform in identifying music in movies in terms of the benchmark?
2. How can Dejavu be configured to compensate for its weaknesses in music identification in movies?

Sampled signal  
(Big)



Fingerprint!  
(Smol)

## Experiments

### 1. Preliminary testing

0 out of 130, no idea which movies they were

### 2. Default configuration against the benchmark

[graph]

### 3. Confidence thresholding

[graphs]

### 4. Pitch shifting

[graph]

### 5. Final configuration

[graphs]

### 6. Validation testing

## Future Works Dejavu

1. Precision in confidence of identification
2. Explore more configurations

## Future Works Benchmark

1. More categories
2. Combine categories

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## Dejavu

### Pipeline

#### Output

Song name

Query time

Input confidence

Fingerprinted confidence

### Important takeaways

1. Highly configurable
2. Never returns 'no result'

## Experiments

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[graphs]

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[graph]

### 5. Final configuration

[graphs]

### 6. Validation testing

## Conclusions

### Limitations

### Pipeline

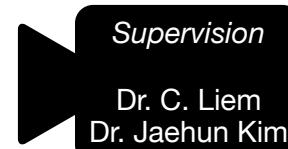
Output  
Song name

## Conclusions

### Limitations

### Pipeline

# Performance of the Dejavu in music identification in movies



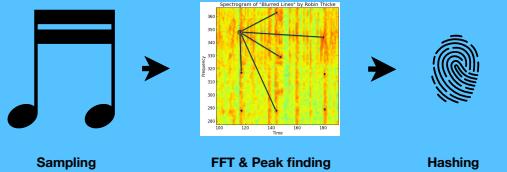
## Research Questions

- How does Dejavu perform in identifying music in movies in terms of the benchmark?
- How can Dejavu be configured to compensate for its weaknesses in music identification in movies?

## Dejavu

Dejavu uses an audio fingerprinting framework in Python.

### Fingerprinting pipeline



### framework features

1. Dejavu is highly configurable in terms of both the output and the fingerprinting process
2. Dejavu is designed to always return a result, and thus it needs to be thresholded to disable low-confidence result reports

### Relevant configurable parameters

1. **FFT window size:** determines how many samples are considered for FFT analysis at a time
2. **Threshold:** threshold can be configured indirectly

## Preliminary testing

**Dataset:** 130 labelled sample clips from movies

**Configuration:** Optimal based on the benchmark score

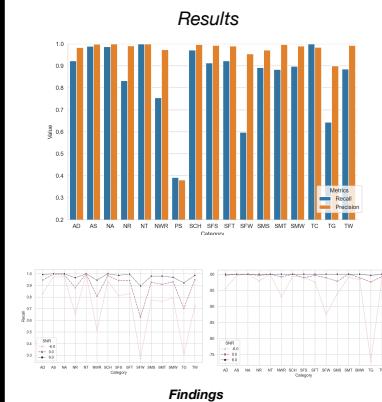
**Result:** No true positives, however, the associated movie soundtrack was identified in some cases

## Conclusions

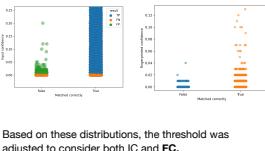
- Dejavu performs based on the expectations in terms of the benchmark
- Dejavu can be reconfigured to perform better in the context of music identification in movies

## Experiments

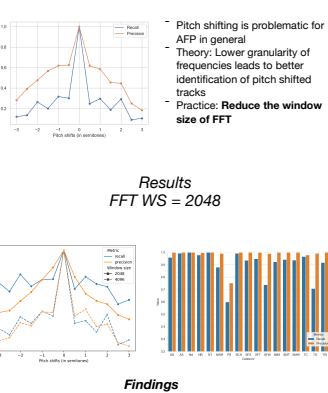
### Initial benchmarking $IC = 0$



### Examining confidence



### Examining pitch $IC = 0.5, FC = 0$



## Limitations

- Dejavu has not performed well on real data, proving that the benchmark is not a direct indication of a framework's performance
- Not all categories found in movies were tested
- Reduction in granularity of frequencies may have a negative impact on accuracy in general
- Applying a threshold on fingerprinted confidence may be inaccurate

## Validation testing

**Dataset:** 130 labelled sample clips from movies

**Configuration:** Optimal based on the benchmark score

**Result:** No true positives, however, the associated movie soundtrack was identified in certain cases with similar genres, indicating some improvement

## Scalability

**Configuration:** Optimal based on the benchmark score

Total tracks	Average query time (in seconds)
10	0.965
98	0.991
196	1.357
980	1.487

## Future Works

- Research Dejavu and its search algorithm
- Test more configurations
- Improve precision of confidence results
- Add new benchmark categories
- Combine categories