
MUSIC GERNE CLASSIFICATION
mirror_mod.use_x = False
mirror_mod.use_y = True
mirror_mod.use_z = False
elif operation == "MIRROR_Z":
mirror_mod.use_x = False
mirror_mod.use_y = False
mirror_ob.select= 1
modifier_ob.select=1
bpy.context.scene.objects.active = modifier_ob
print("Selected" + str(modifier_ob)) # modifier ob is the active ob
#mirror_ob.select = 0

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Scenario

Solution

Impact

Mitigation

Summary

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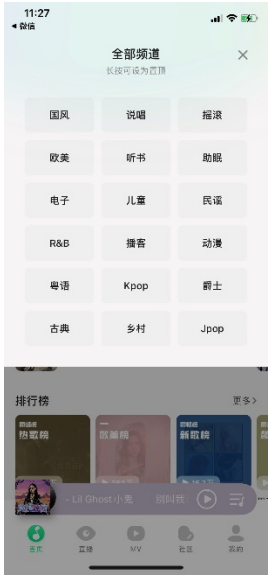
Summary

The Application of Music Labelling

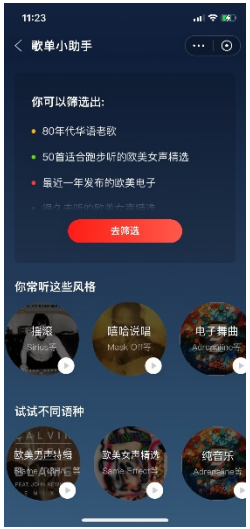
Searching

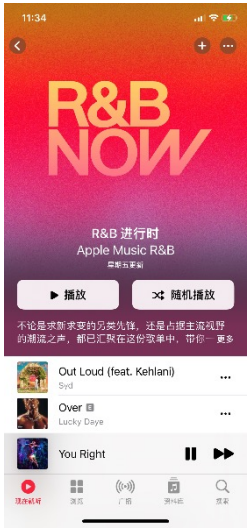
Users use labels to find specific type of music.



Recommendation

Stream platforms use labels to produce user portrait and recommend music accordingly.





Standard Practice

Traditional Solutions	Potential Risks	Problems to Solve
Artists	Artists attempt another genres	**Low accuracy**
Music publishers	Label with popular but unmatched genre for exposure	
Data labelers	No available crowdsourcing service Labor costs	**Inefficient and expensive**

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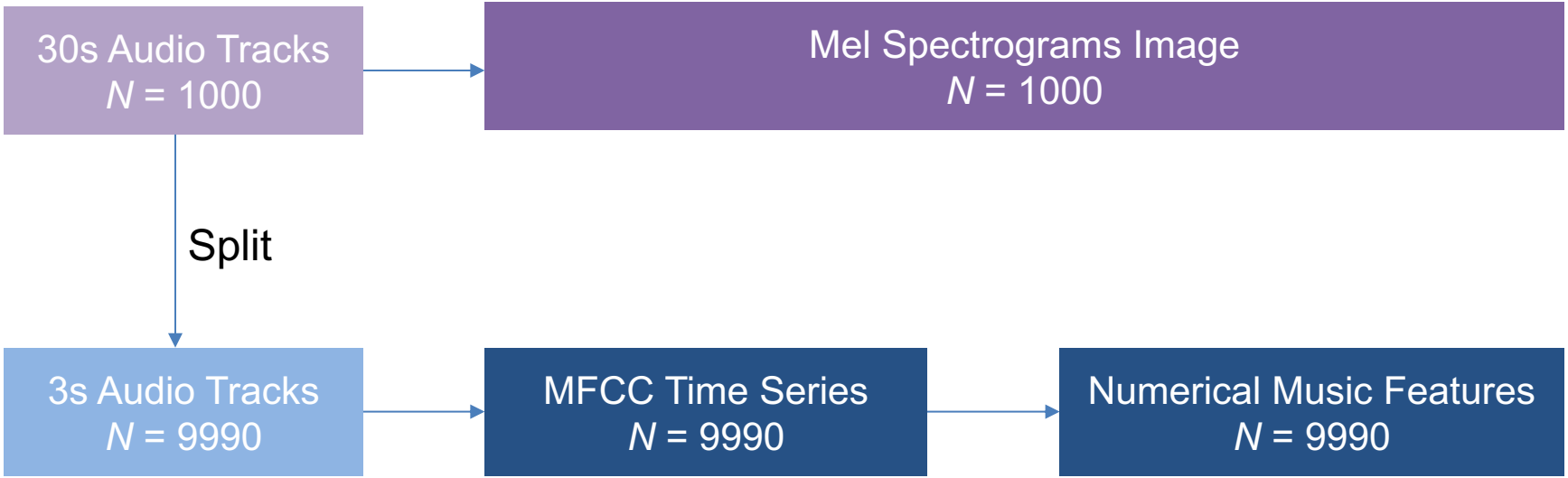
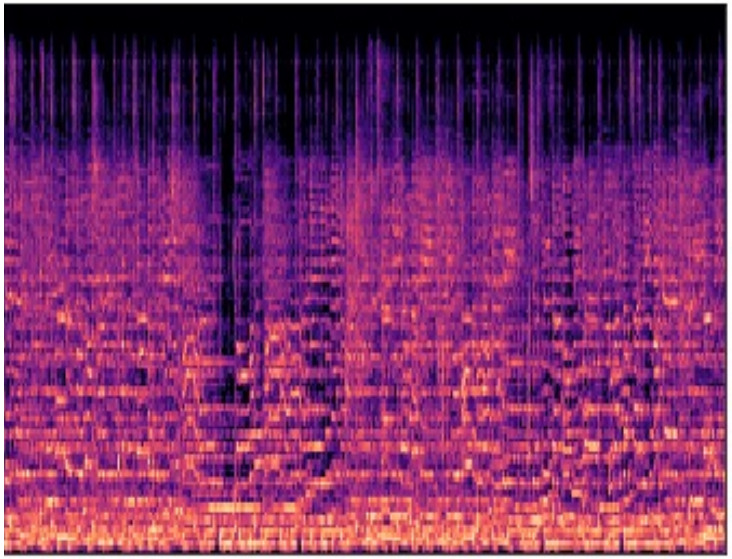
Dataset Generation

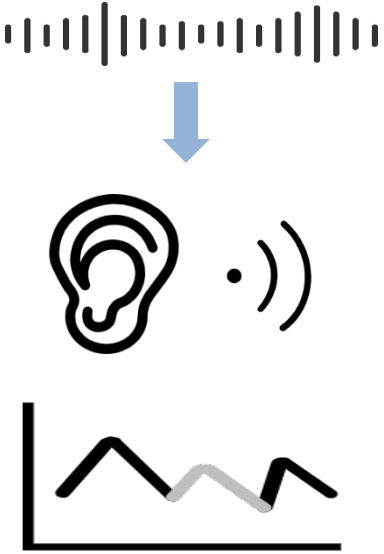


Image, Time Series, Numerical Inputs

Mel Spectrograms



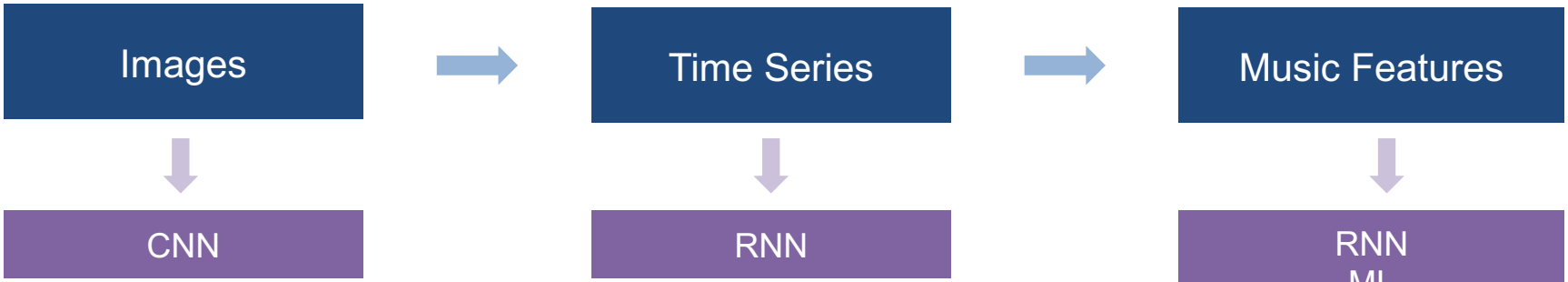
MFCC



Music Features

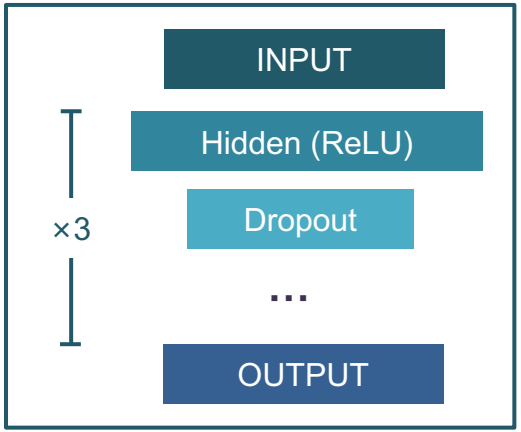
- Tempo
- Zero crossing rate
- Harmony
- ...
- MFCC

Models for Different Data



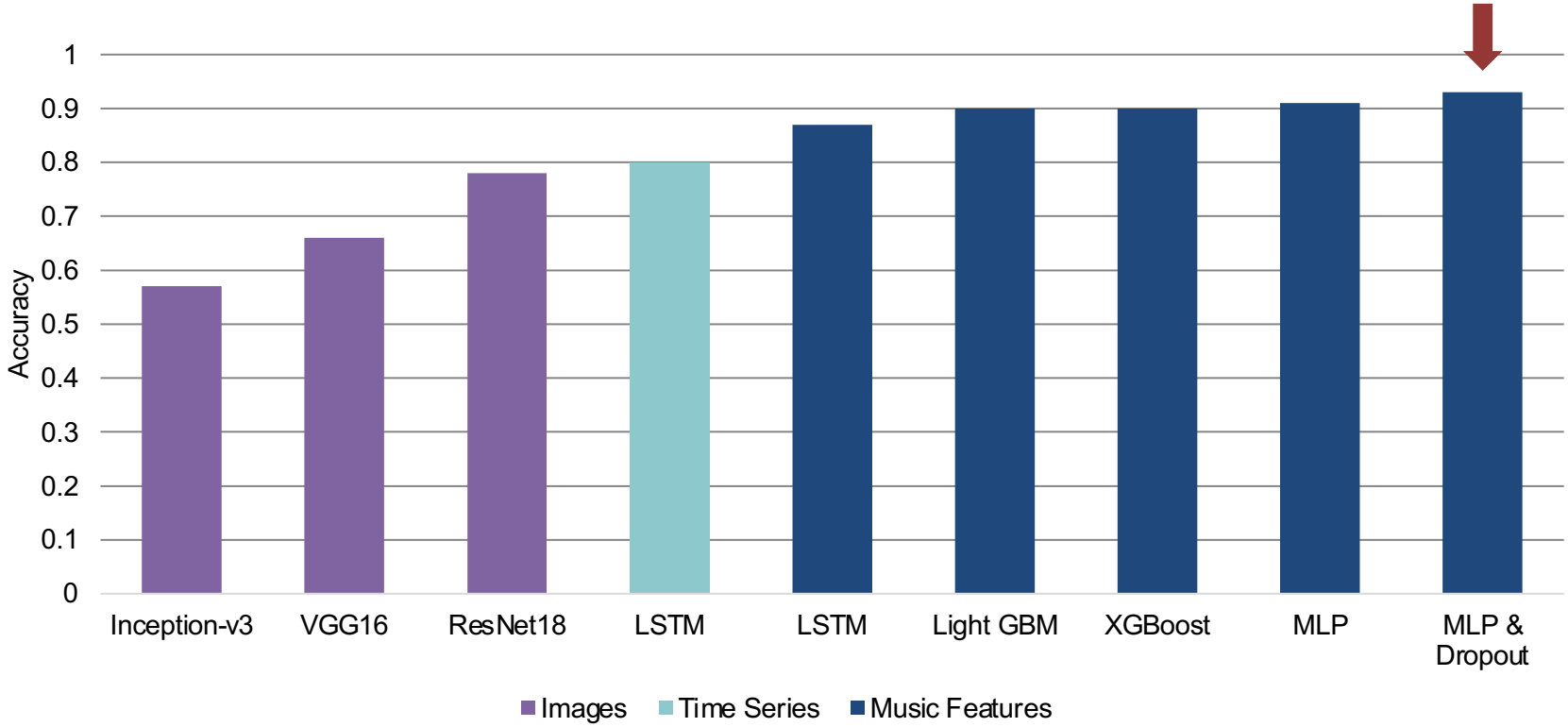
- VGG16
- VGG16_bn
- Inception-v3
- ResNet18
- ResNet34
- ResNet50

- LSTM



Model performance

MLP with dropout trained on **Music Features** Dataset is the **BEST**.



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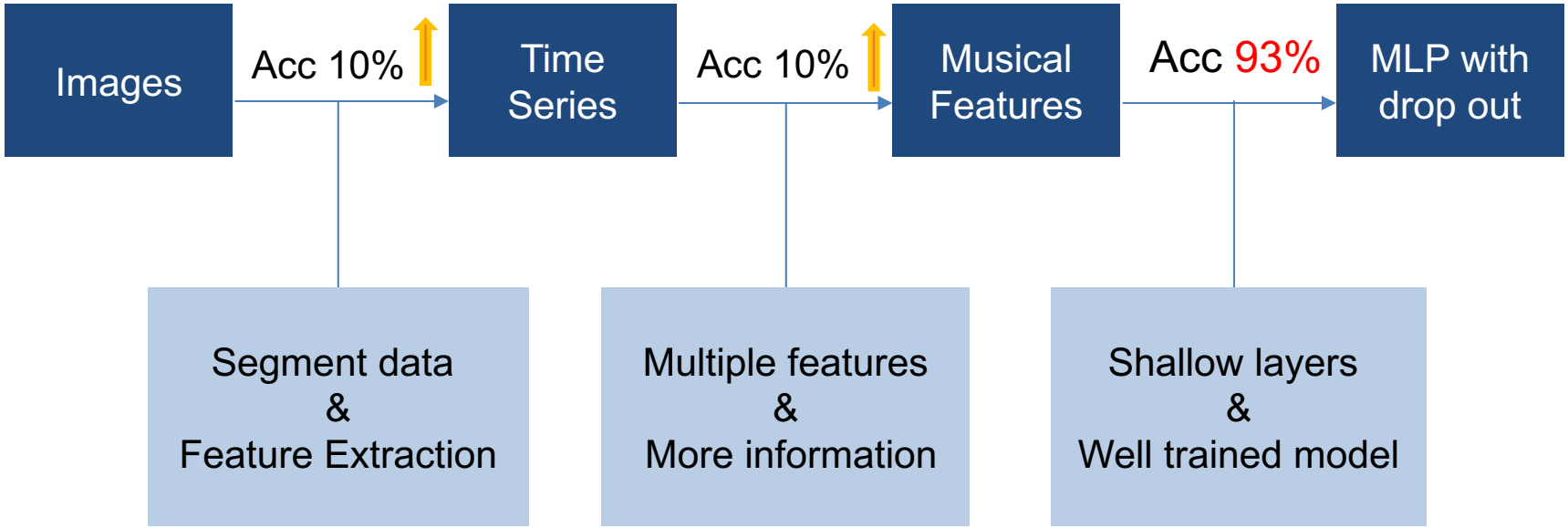
Marginal Improvement



Cost Reduction & Efficient Improvement

	Human	→	Algorithm
HR demand	High Interns or outsourcing companies		Low Equipment maintenance
Time cost	High 30 secs per song per person		Low 500 songs per second
Capital cost	High Limited to efficiency		Medium Maintenance cost + Algorithm price

15,000 times faster

Save 2,000,000 CNY

*According to detailed assumptions.

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Further Improvements

Limitations		Mitigation plan
• Limited feature numbers • General genres • Uni-label classification	**Data enrichment** →	• Extract more features, feature importance analysis • More detailed labels, e.g. funk, garage rock, hard rock… • Multi-label deep learning
• Genre-based classification	**Dimension diversification** →	• Content-based classification, e.g. Lyrics analysis

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Automatic Music Genre Classifier

Scenario

Misclassification on music genre
Expensive and time-consuming manual labelling

Solution

Enlarged sample + Music features + MLP

Impact

93% Accuracy Cost 37.5% ↓ Efficiency 15,000x ↑

Mitigation

Data enrichment
Classification Dimension Diversification


THANKS FOR YOUR LISTENING!
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mirror_mod.use_z = False
elif _operation == "MIRROR_Z":
mirror_mod.use_x = False
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mirror_ob.select= 1
modifier_ob.select=1
bpy.context.scene.objects.active = modifier_ob
print("Selected" + str(modifier_ob)) # modifier ob is the active ob
#mirror_ob.select = 0
AJK5545001J-JK
AD-58457-DJ-JK