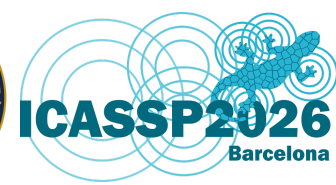


BACHI: BOUNDARY-AWARE SYMBOLIC CHORD RECOGNITION THROUGH MASKED ITERATIVE DECODING ON POP AND CLASSICAL MUSIC

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WHY SYMBOLIC CHORD RECOGNITION?



Fundamental for music **education** and **controllable music generation**.



Underexplored due to **scarcity of labels** in symbolic domain



Existing methods didn't follow **human analytical practice**.

MAIN CONTRIBUTIONS

1



POP909-CL

New **benchmark** with rich annotations

2



BACHI

ACR model with **boundary-aware** and **iterative decoding**

3



STATE-OF-THE-ART

Best symbolic ACR model on **classical** and **pop**

DATA & SETUP



POP909-CL: 909 pop piano with ~41% start beats, ~35% chords, ~14% keys, ~3% time signatures corrected



Classical corpus:

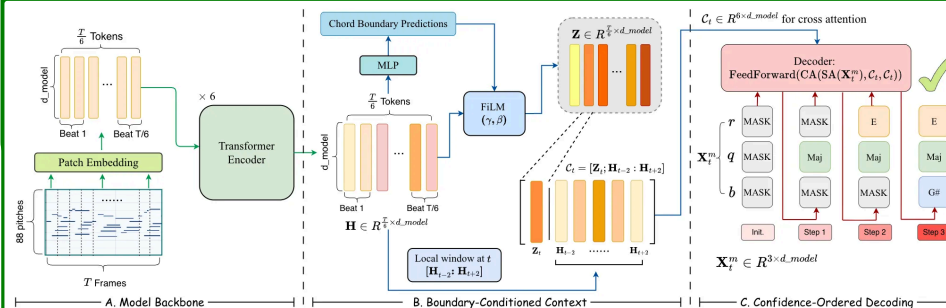
When-in-Rome + DCML = ~1600



Training Setup:

train:test = 9:1,
12-key augmentation

METHOD OVERVIEW



- **Patch embedding** on beat-aligned pianorolls (12 frames/beat).
- **Boundary predictions** are injected to hiddens via **FILM**.
- **Masked decoder** iteratively predicts root, quality, and bass in **confidence** order.

KEY RESULTS



Human-inspired boundary-aware and iterative decoding improves symbolic ACR



Advantages are **robust** in multiple genres.



Classical: 68.1% **POP909-CL: 82.4%**



BENCHMARK RESULTS

BASELINE COMPARISON

Classical

Method	Full-Chord Acc (%)
Rule-based	28.4
AugmentedNet	57.2
ChordGNN	58.5
HarmonyTransformer v2	62.1
BACHI (ours)	68.1

POP909-CL

Method	Full-Chord Acc (%)
Rule-based	65.0
AugmentedNet	78.7
ChordGNN	71.6
HarmonyTransformer v2	82.2
BACHI (ours)	82.4

ABLATION STUDY

	w/o BD & ID	w/o ID	+ Key Detection	Full BACHI
Classical	66.1	65.6	67.6	68.1
POP909-CL	82.1	82.3	81.4	82.4

BD: Boundary Detection ID: Iterative Decoding

INSIGHTS



Boundary-aware decoding produces **less jitter** results



Iterative decoding finds **genre-specific patterns unsupervsely**:
classical: quality first, pop: bass first

Project Page:



GitHub:

