Problem Definition

Composer Classification

Using music on **symbolic** domain!

Why Symbolic Representation?
- Independent to timbre & acoustic recording environment.
- Focus on note-related aspects such as pitch and duration of notes.

Proposed System

MIDI in symbolic level

**Input:** 2 channels (onset, frame) of 2D array(time, pitch)

**ResNet** for learning spatial features such as pitch interval tendency (e.g. chord and voicing)

**MAESTRO Dataset v2.0.0**

classical MIDI performances
**stratified sampling** (347:158)

<table>
<thead>
<tr>
<th>Composer (abb.)</th>
<th>Pieces</th>
<th>Composer (abb.)</th>
<th>Pieces</th>
</tr>
</thead>
<tbody>
<tr>
<td>F. Chopin (Chop)</td>
<td>64</td>
<td>W. A. Mozart (Moza)</td>
<td>29</td>
</tr>
<tr>
<td>J. S. Bach (Bach)</td>
<td>62</td>
<td>D. Scarlatti (Scar)</td>
<td>25</td>
</tr>
<tr>
<td>L. V. Beethoven (Beet)</td>
<td>62</td>
<td>J. Haydn (Hayd)</td>
<td>20</td>
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<tr>
<td>F. Liszt (Lisz)</td>
<td>60</td>
<td>A. Scriabin (Scri)</td>
<td>19</td>
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<tr>
<td>F. Schubert (F-Sch)</td>
<td>58</td>
<td>R. Schumann (R.Sch)</td>
<td>18</td>
</tr>
<tr>
<td>C. Debussy (Debu)</td>
<td>37</td>
<td>J. Brahms (Brah)</td>
<td>17</td>
</tr>
<tr>
<td>S. Rachmaninoff (Rach)</td>
<td>34</td>
<td></td>
<td></td>
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► 505 pieces by 13 composers

Results

**Baroque**

**Classical**

**Romanticism**

Only 5/19 misclassifications are from different eras!
► Probably because similar musical patterns exist within the same era.

Model performed better for relatively old classical composers!
► Probably because it’s easier

**Number of segments per track**
► Performance converges over 30 segments

**Onset Channel Usage**
► Having Onset information helps!

**Frame Binarization**
► Improved acc. By 0.0192 to 0.8525 ► velocity info didn’t help

**Where can I find it?**

**Github**
https://github.com/KimSSung/Deep-Composer-Classification

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**Deep Composer Classification Using Symbolic Representation**

Sungheyeon Kim*, Hyeoyo Lee*, Sunjong Park*, Jinho Lee, Keunwoo Choi

(*ahalah25, hylee817, ryan0507, leejinho@yonsei.ac.kr, keunwoo.choi@bytedance.com)

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