

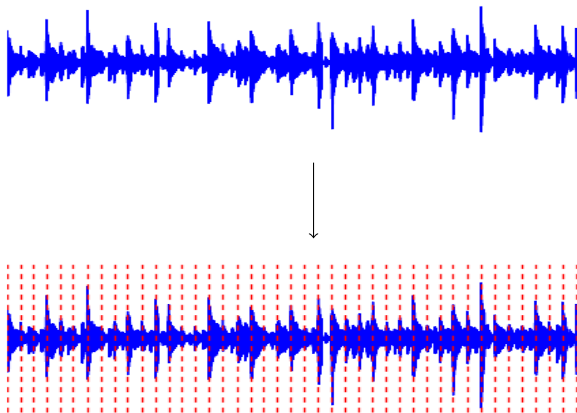
ROBOD: a Real-time Online Beat and Offbeat Drummer

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Beat tracking



Beat tracking : online problem

- Limited information : only previous data is available
- Cannot fix errors afterwards

ROBOD



Created by Javier Trives
from Nasa Project



interaction



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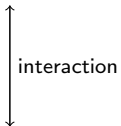
ROBOD



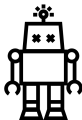
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ROBOD



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interaction



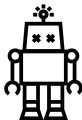
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Rhythmic companion

beats

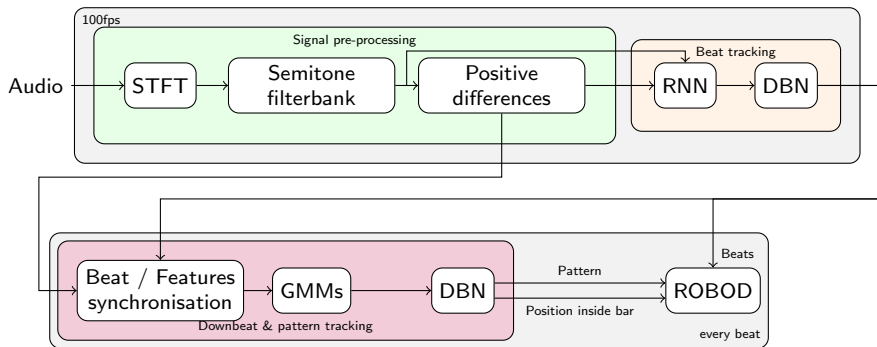
downbeats

rhythmic patterns

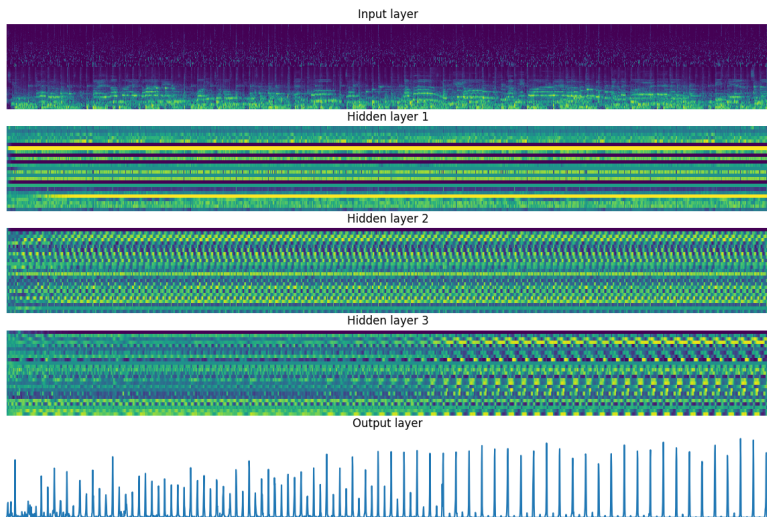


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ROBOD : Global description



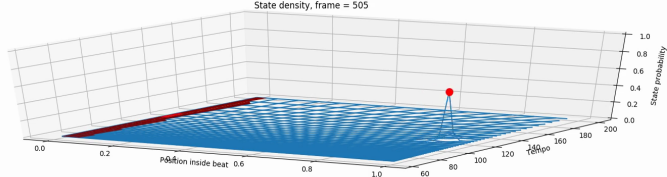
Beat tracking : RNN



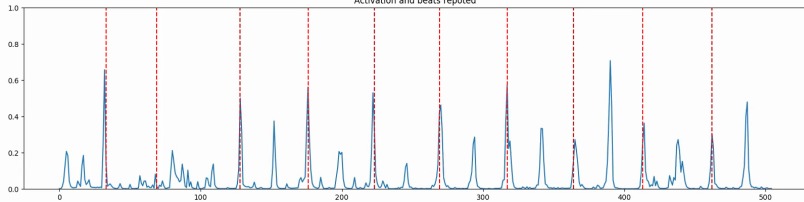
Beat tracking : DBN

Before beat

State density, frame = 505



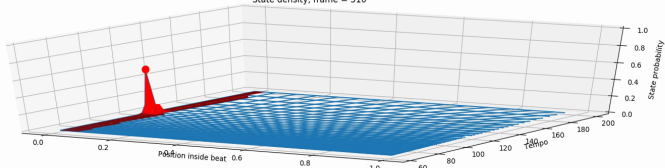
Activation and beats reported



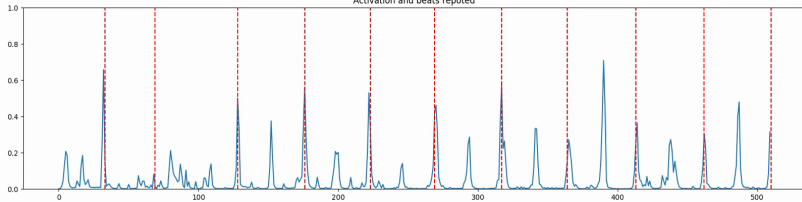
Beat tracking : DBN

On beat

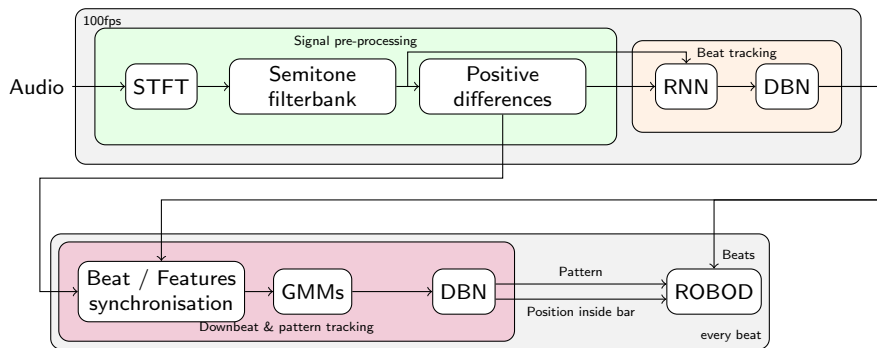
State density, frame = 510



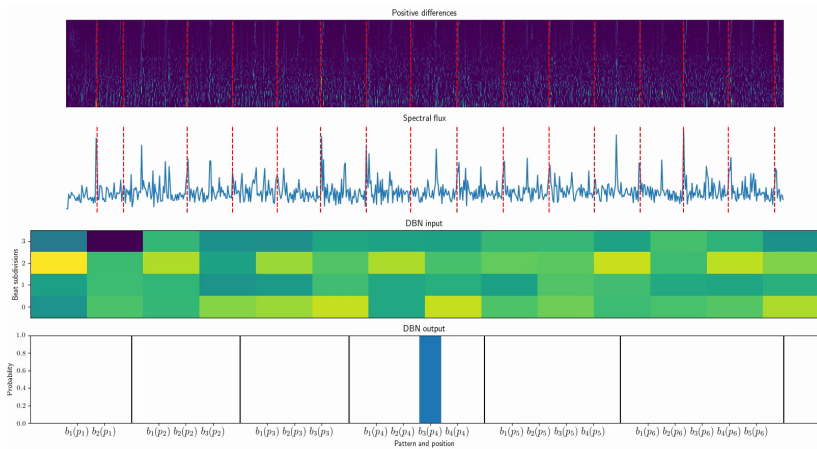
Activation and beats reported



ROBOD : Global description



Pattern tracking



Conclusion

- ROBOD is more than just a beat tracker
- The online beat tracking algorithm is open source and available at :
<https://github.com/CPJKU/madmom> or
`pip install madmom`

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Question

Questions ?