

Maestro



maestro

noun. /'maɪstrəʊ/

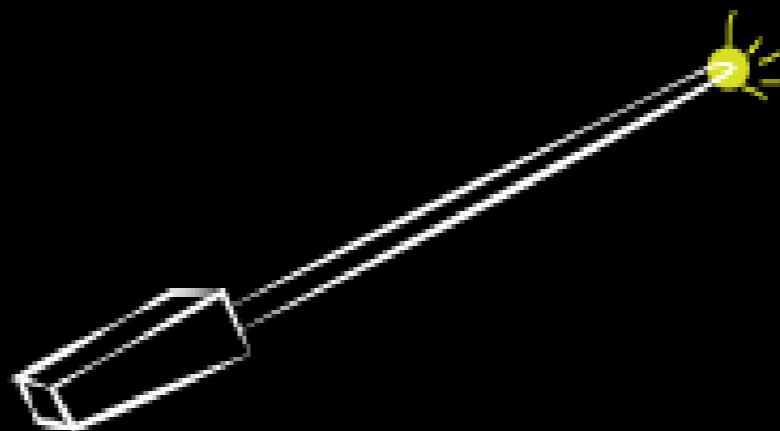
A distinguished conductor or performer of classical music.

- Oxford Dictionary





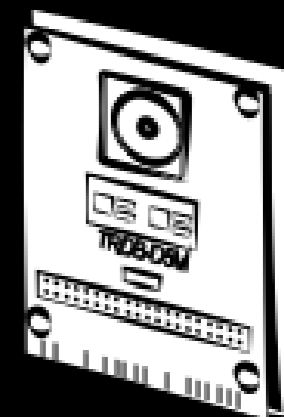
Glove LED Light



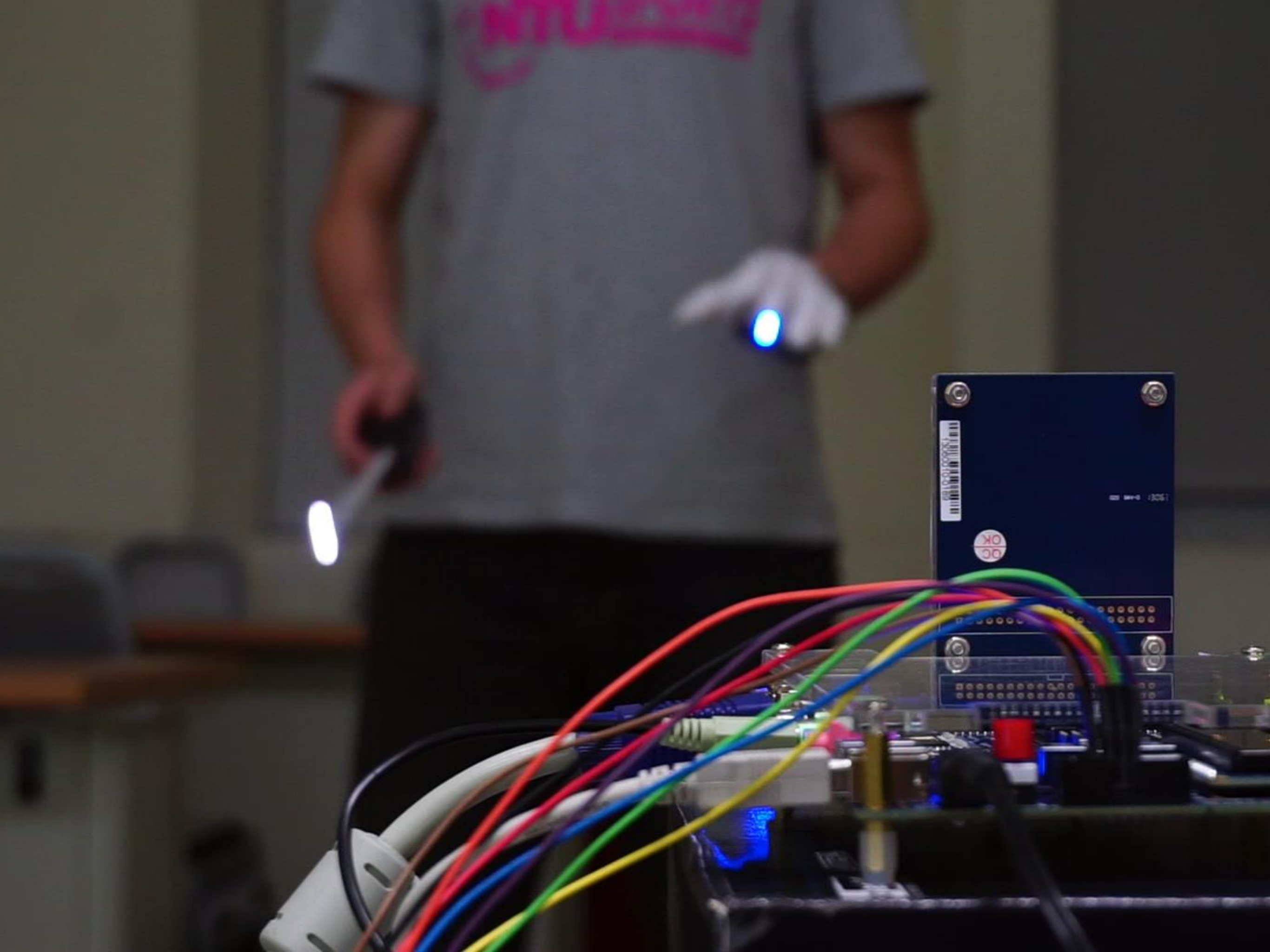
Baton LED Light

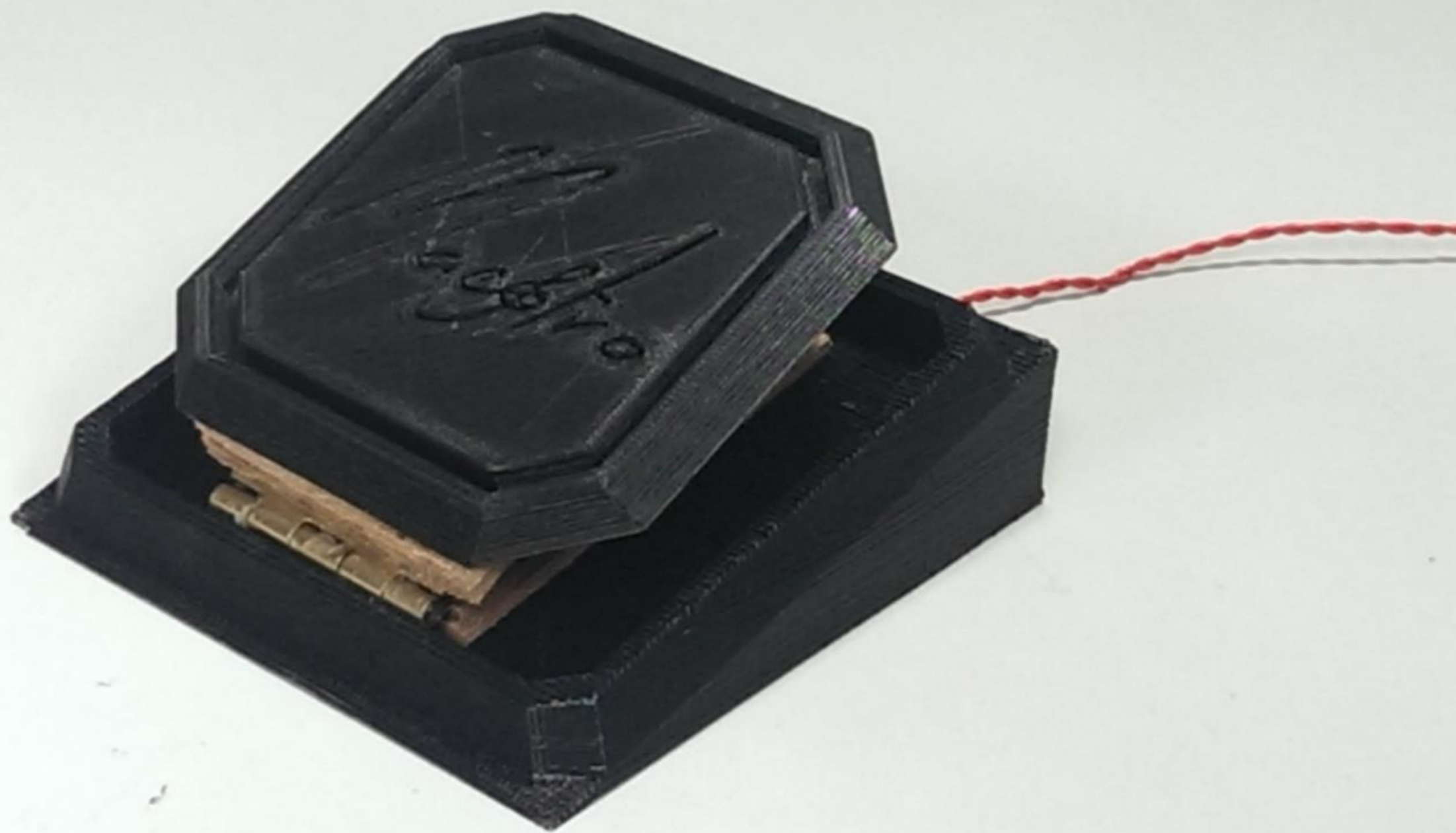


Volume Pedal

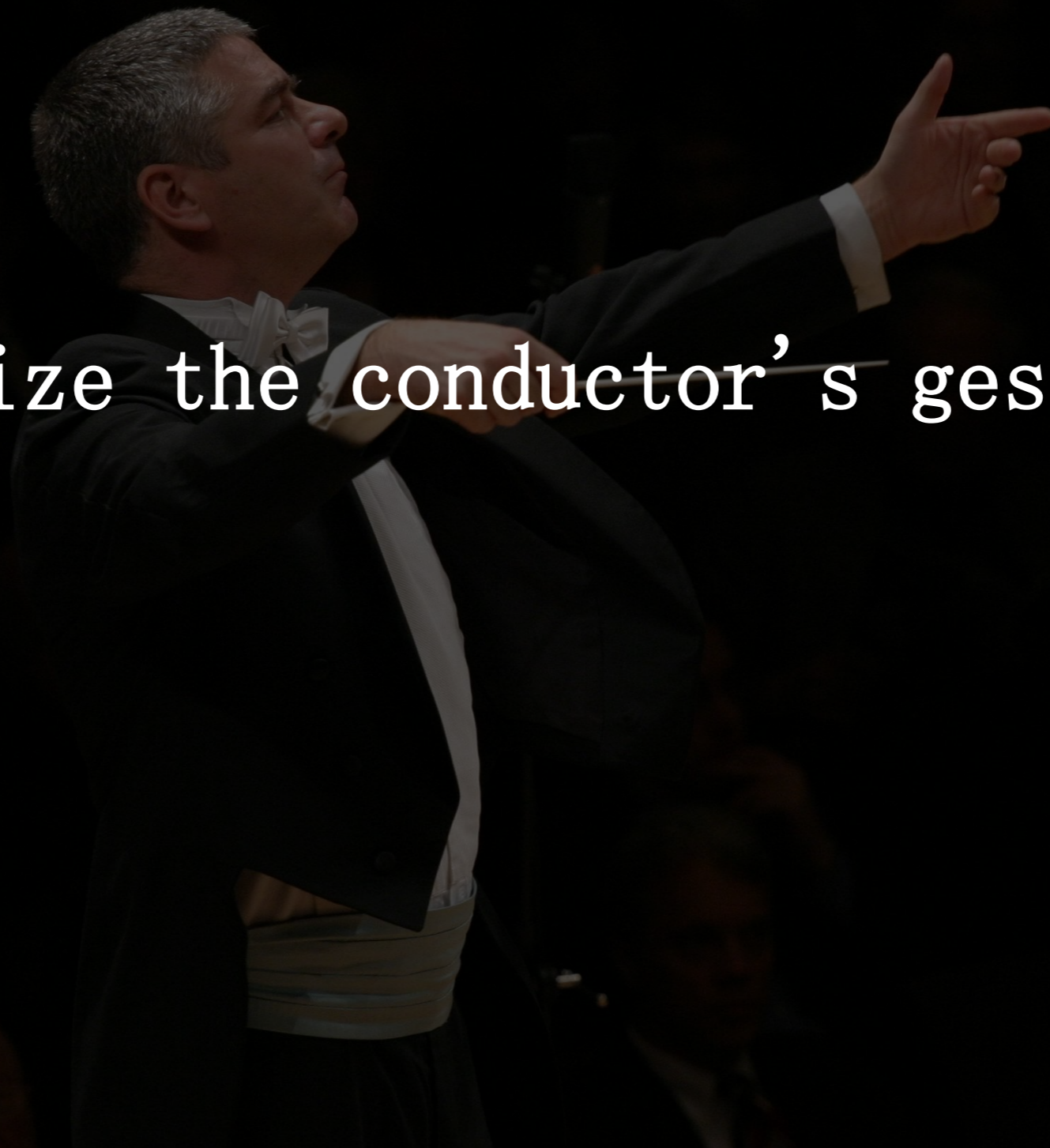


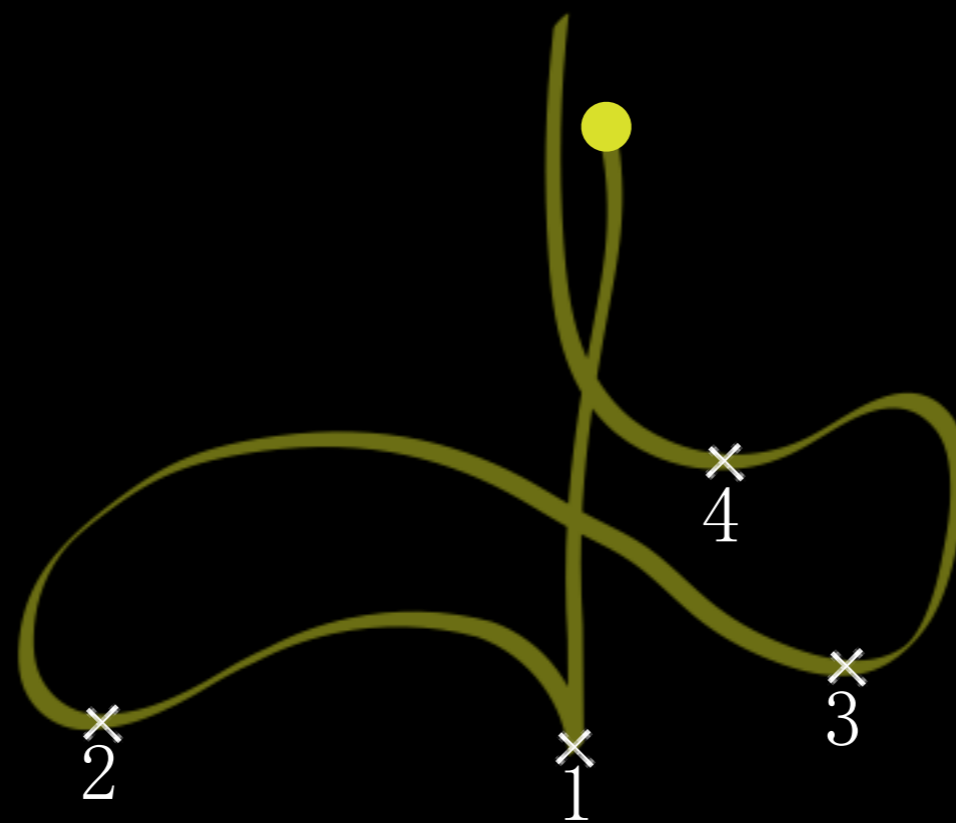
D5M Camera





How to
Recognize the conductor's gesture ?



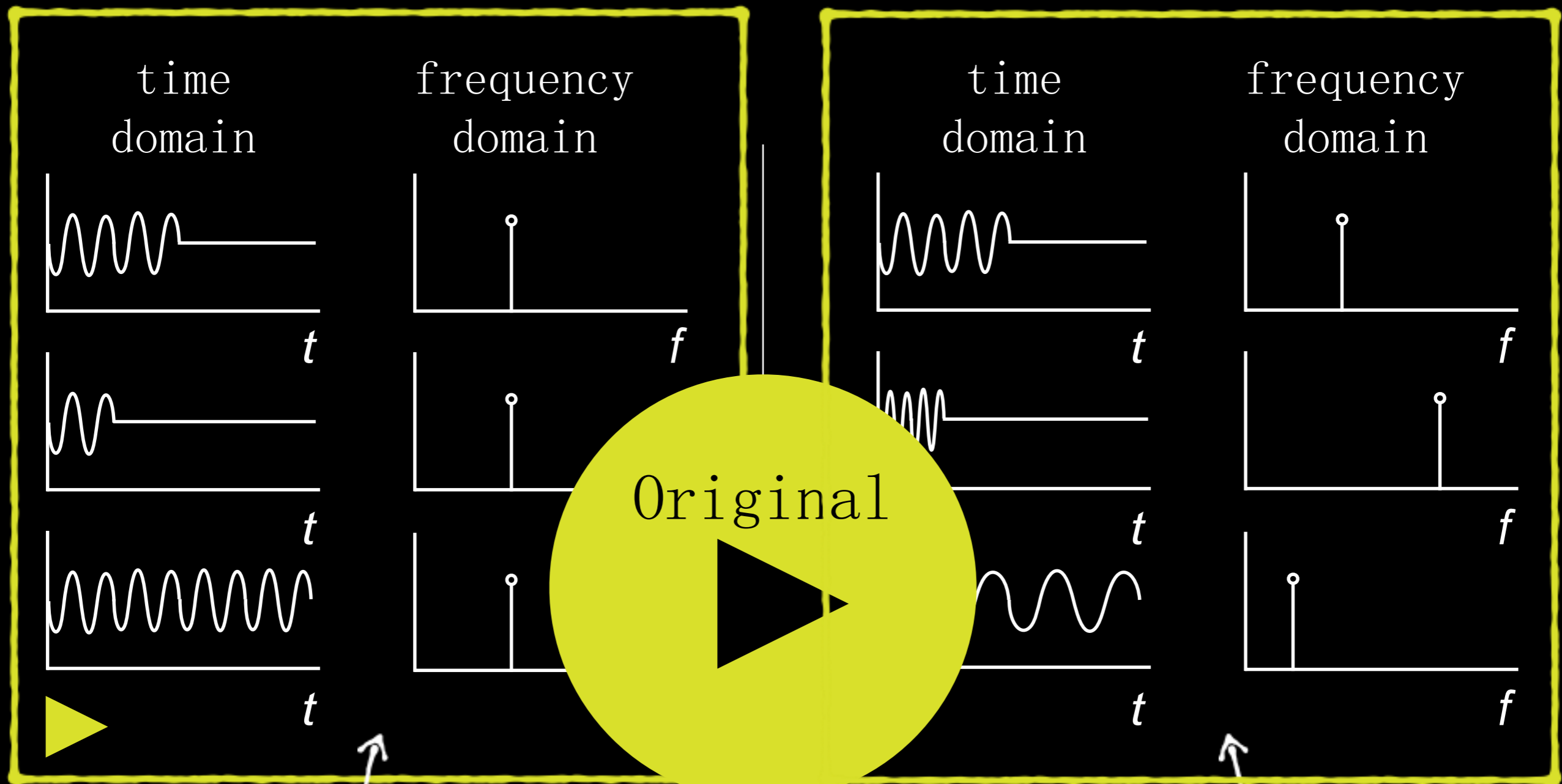


How to modify the music tempo
without changing the pitch



Time-Stretching !

... not Time-Scaling



Time-Stretching

Time-Scaling

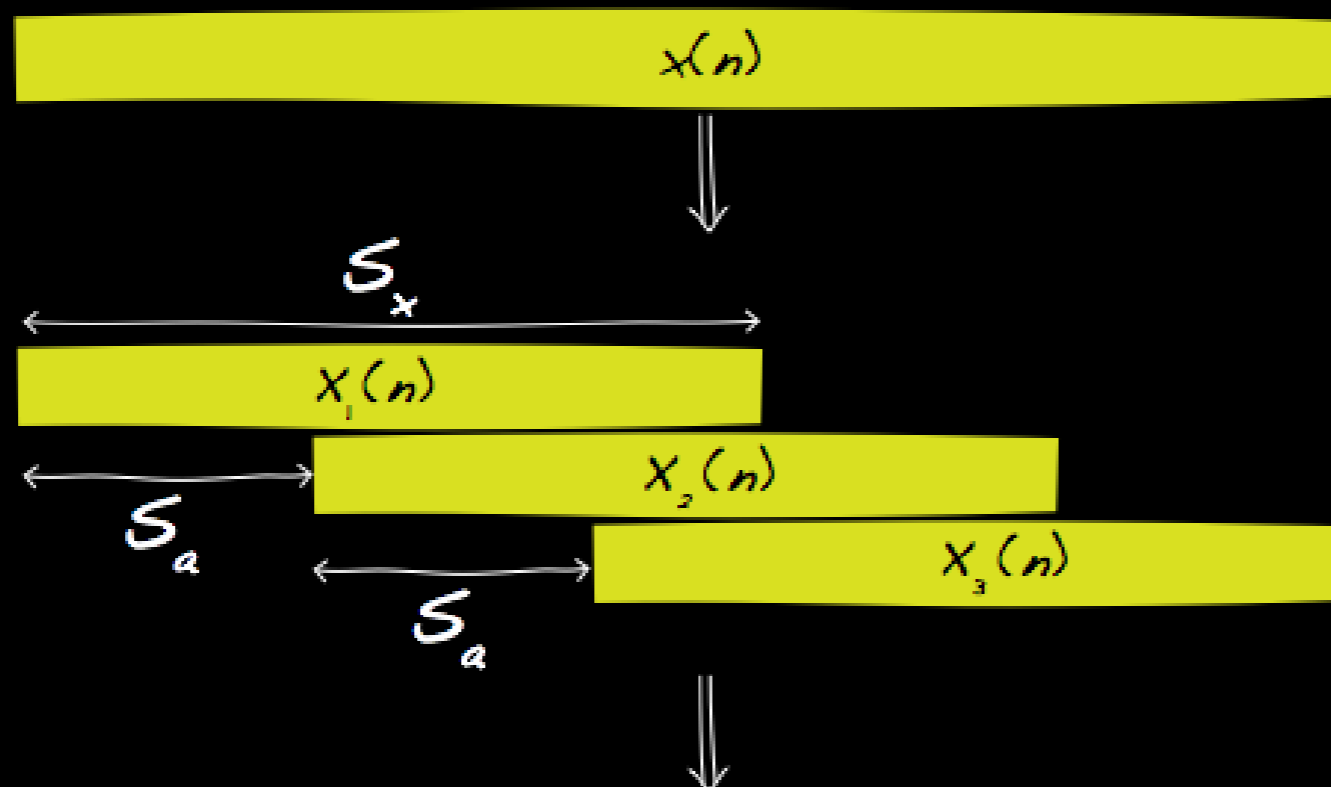
SOLA algorithm

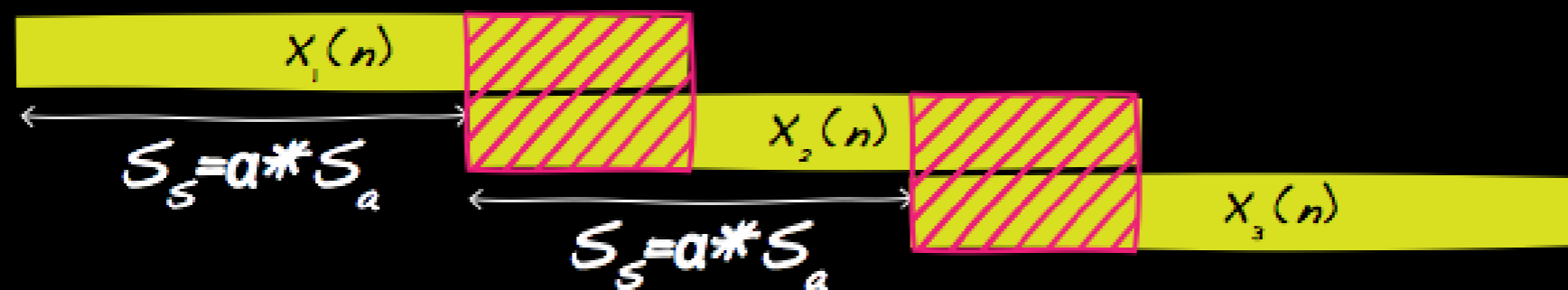
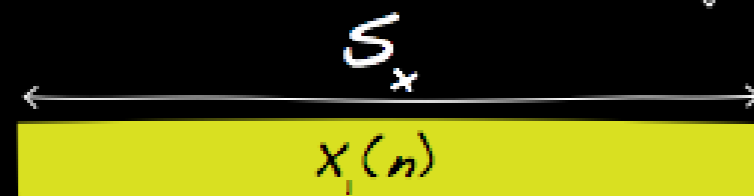
Synchronous Overlap and Add

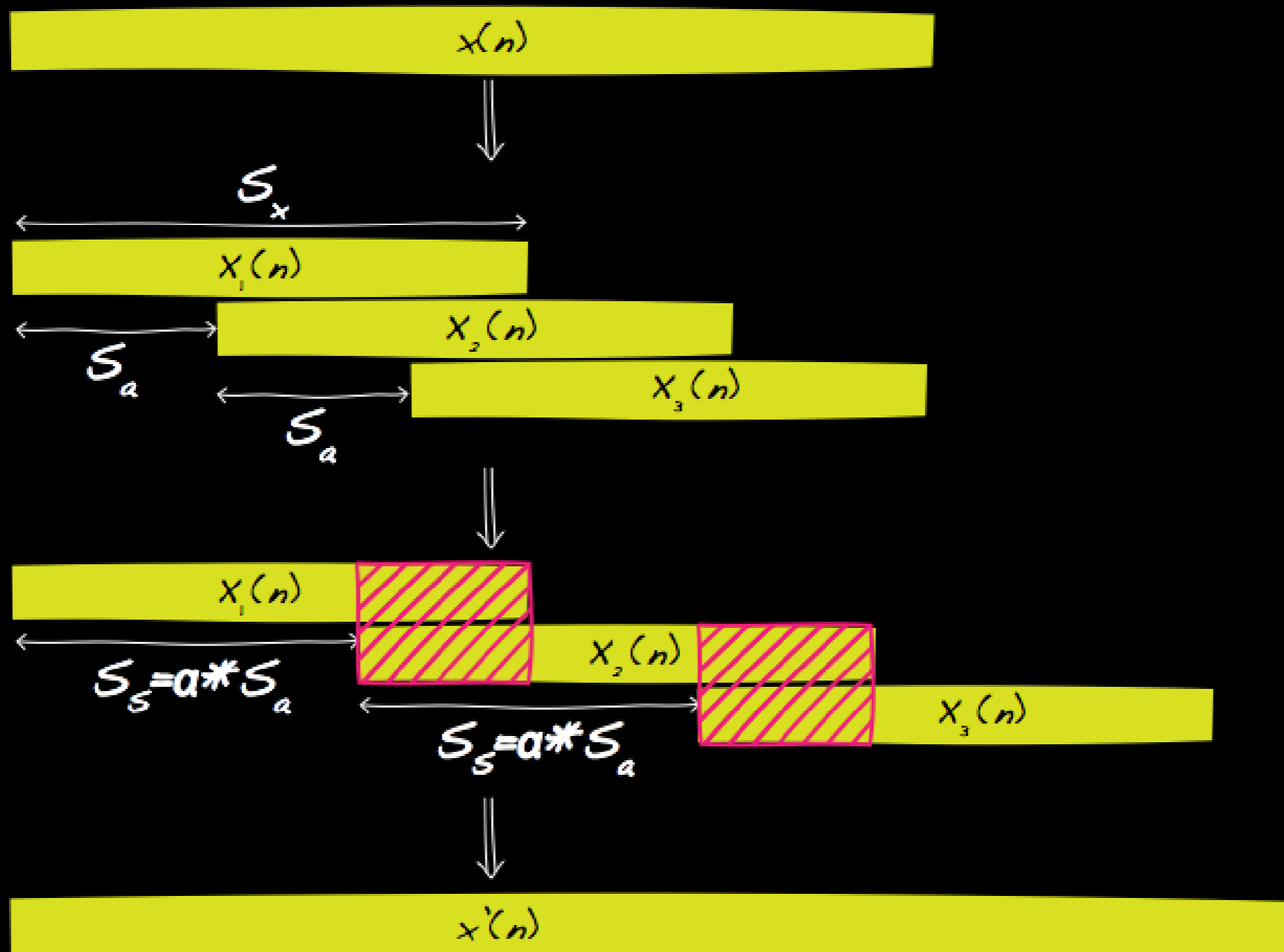


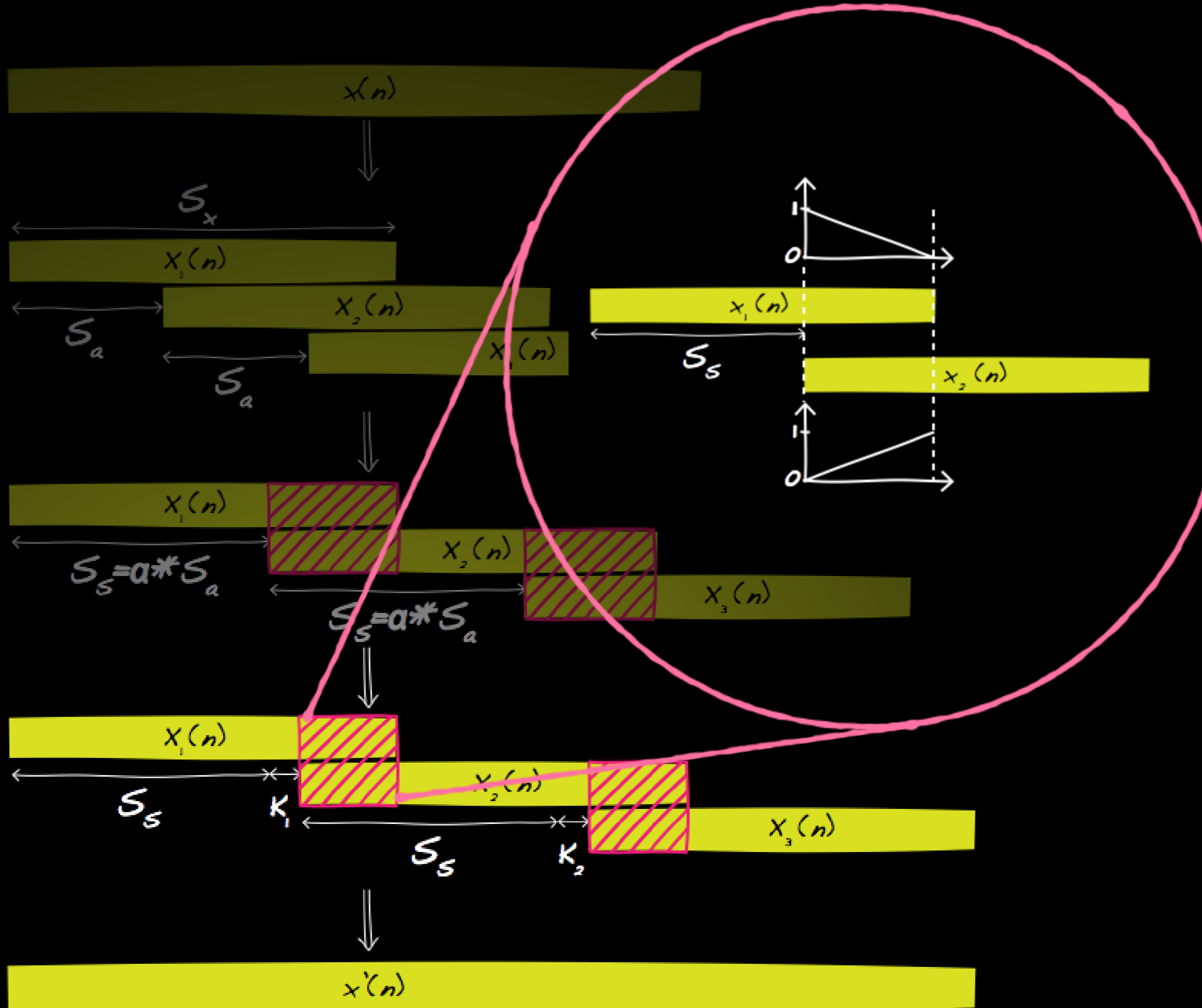
$x(n)$

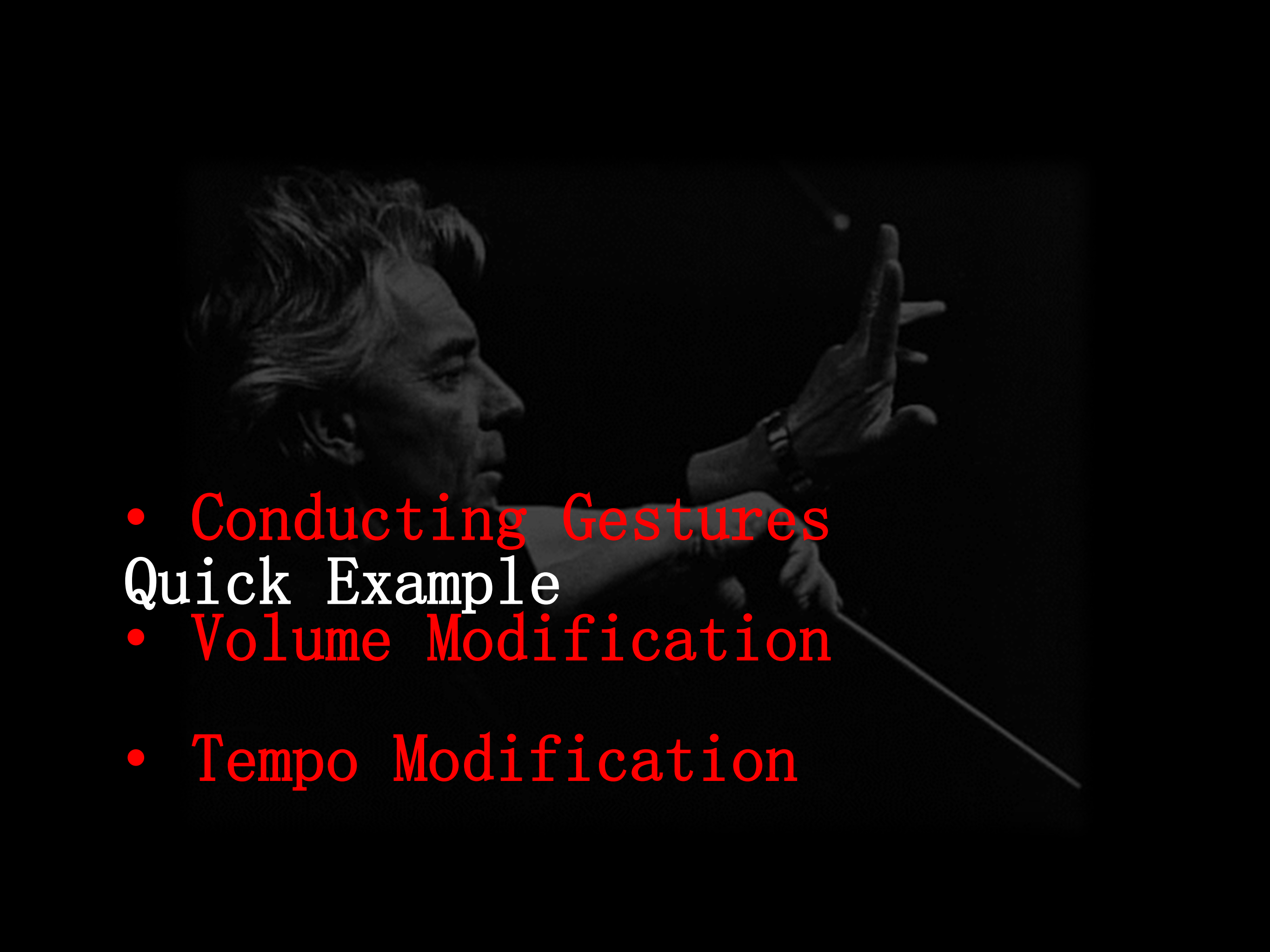










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- Conducting Gestures
- Quick Example
- Volume Modification
 - Tempo Modification

Pachelbel, Canon in D major

Violino I

Violino II

Violino III

Basso

The image shows a handwritten musical score for Pachelbel's Canon in D major. The score is written on four staves, labeled Violino I, Violino II, Violino III, and Basso. The key signature is D major (two sharps) and the time signature is common time (C). The Violino I, II, and III staves are in treble clef, and the Basso staff is in bass clef. The music is written in a cursive, handwritten style. The first two staves (Violino I and II) have a whole rest in the first two measures, followed by a series of eighth notes in the third measure, and then a series of eighth notes in the fourth measure. The Violino III staff has a whole rest in the first two measures, followed by a series of eighth notes in the third measure, and then a series of eighth notes in the fourth measure. The Basso staff has a series of eighth notes in the first measure, followed by a series of eighth notes in the second measure, and then a series of eighth notes in the third measure, and finally a series of eighth notes in the fourth measure.



Strength of SOLA algorithm

— Real-time processing



Audio CODEC



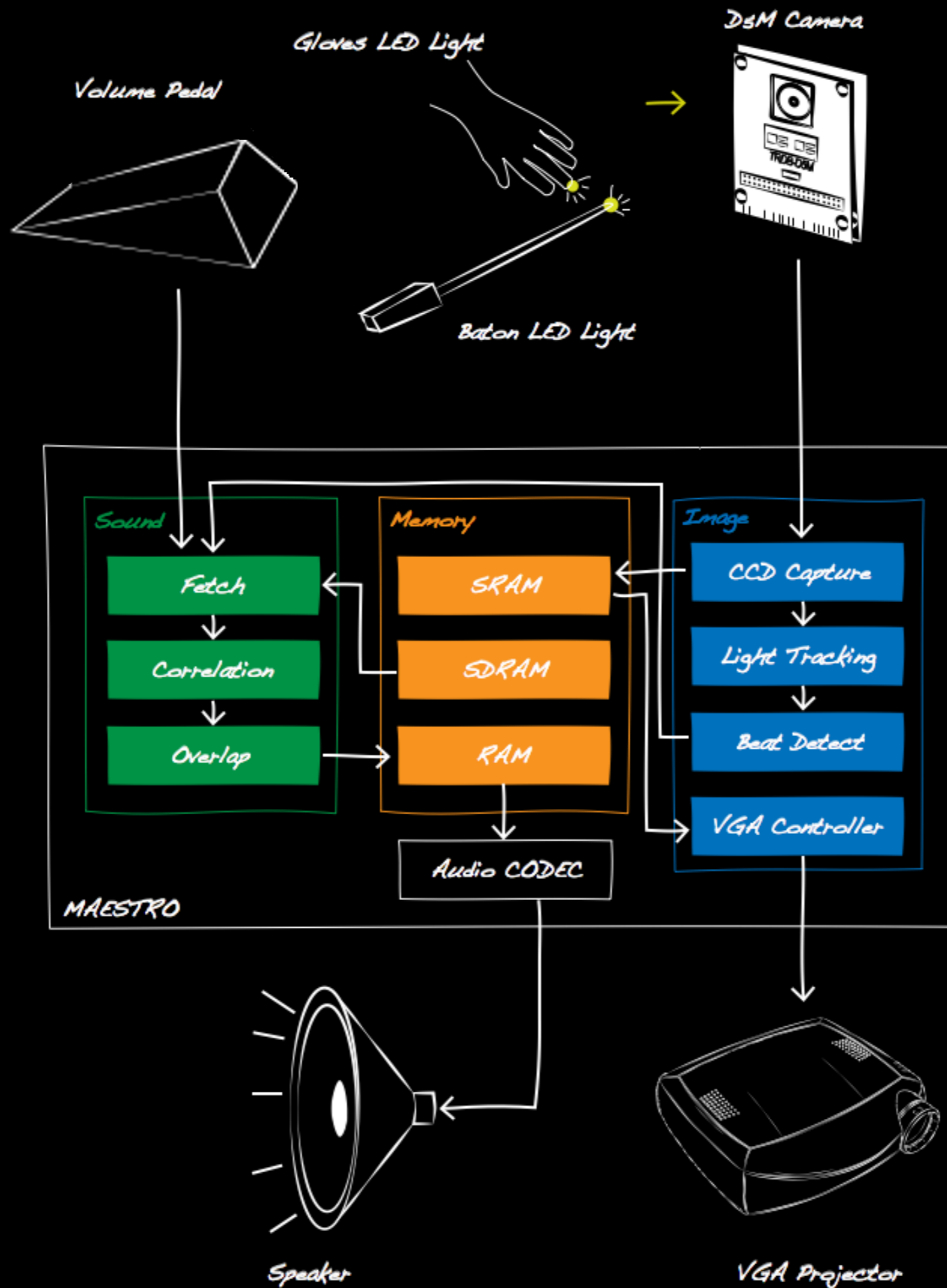
Music Data

For each Music Data segment

Processed Data	
Music Processing	Audio CODEC
64,326 cycles	1,280 cycles
50 MHz	32 kHz
1.06 ms	39.05 ms

SDRAM

Music Data



Volume Pedal

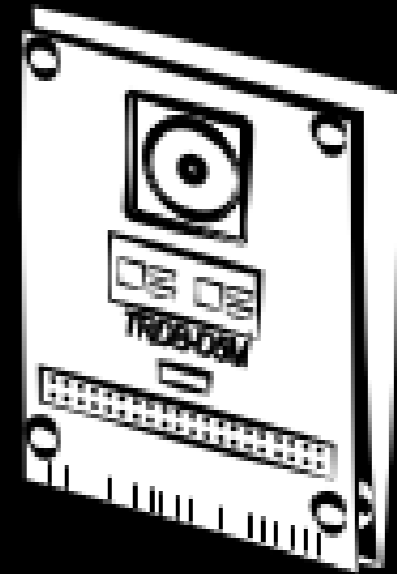


Gloves LED Light



Baton LED Light

DSM Camera



Sound

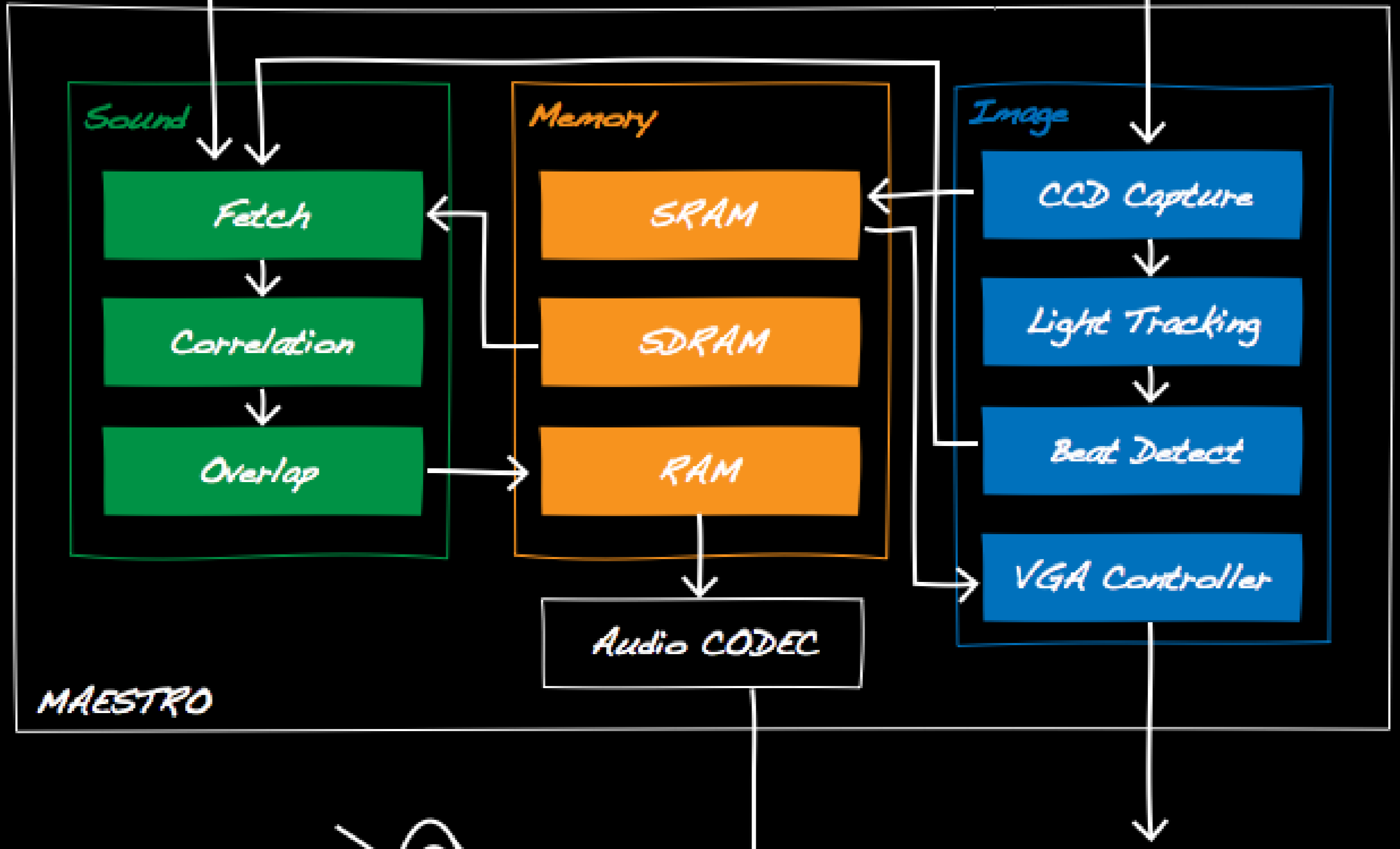
Memory

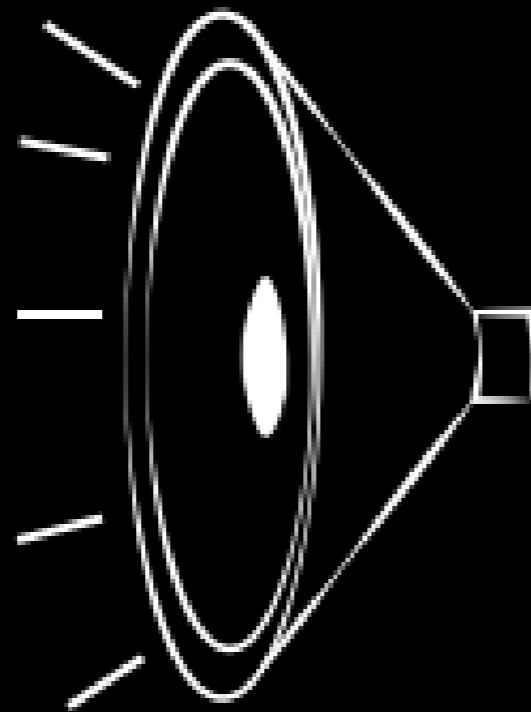
Image



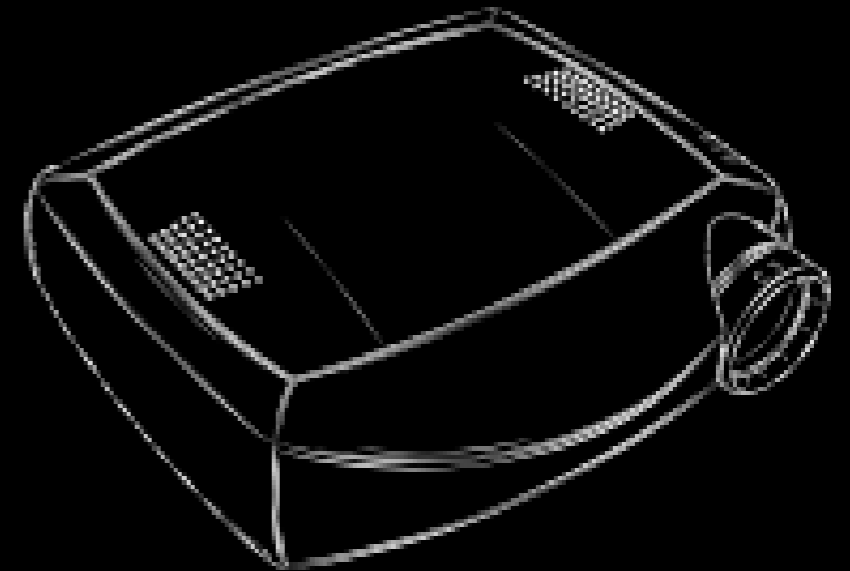


Baton LED Light





Speaker



VGA Projector

Thank you
for your listening