Trisquare V1

Trisquare is a free, open-source visual algorithm. V1 was uploaded on github.com in March 2025.

ABSTRACT

Rooms have three dimensions: Length, Width, and Height. In rooms with spatial bass, three subwoofers are (large and small) placed strategically to, "...maximize their independence...,"[1] from each other. The Trisquare algorithm uses three layers (Floor, Shoulder-height, and Ceiling) to optimize the placement of subwoofers, ensuring each subwoofer is working independently.

GET STARTED

To map out subwoofer placement, divide the room into three layers:

1. **Floor**
2. **Shoulder-height** (roughly halfway up the wall)
3. **Ceiling**

Each layer will be mapped onto a 3x3 square grid.

STEP 1 - FLOOR (Largest subwoofer)

The first step is to decide where the largest subwoofer will sit on the floor.

1. **Place the largest subwoofer on the floor.** Choose any location on the floor grid. Mark this spot with an **F** and add a double dot like this **F..**
2. **Extend the influence of this subwoofer:** In the four boxes extending horizontally and vertically from the F.. box, enter an **F** (without the double dot)
3. **Replicate the placement on other grids:** Now, on both the **Shoulder-height Grid** and **Ceiling Grid**, mark the same five boxes with **F**

STEP 2 - SHOULDER-HEIGHT (Smaller subwoofer)

The shoulder-height layer is roughly halfway up the wall (about 1/2 of the wall height). Slight variations are fine.

1. **Place a smaller subwoofer at shoulder-height:** Choose an empty box on the **Shoulder-height Grid** to place a small subwoofer and mark this box with an **S** and add a double dot like this **S..**
2. **Extend the influence of this subwoofer:** In the four boxes extending horizontally and vertically from the S.. box, enter an **S** (without the double dot)
3. **Replicate the placement on the Ceiling Grid:** On the **Ceiling Grid**, mark the same five boxes with **S**

STEP 3 - CEILING (Smaller subwoofer)

For the ceiling layer, a smaller subwoofer will be placed as high as possible—either on the ceiling or near the ceiling on the wall.

1. **Place a subwoofer on the ceiling:** Choose an empty box on the **Ceiling Grid** to place a small subwoofer and mark this spot with a **C** and add a double dot like this **C..**
2. **Extend the influence of this subwoofer:** In the four boxes extending horizontally and vertically from the C.. box, enter a **C** (without the double dot)

A COMPLETE ALGORITHM

There are no empty cells on the ceiling grid. Each grid has exactly ONE box with a double-dot where a subwoofer will be placed.

1. Geddes, Earl (30 October 2011). Why Multiple Subs? (PDF). gedlee.com. Retrieved 28 February 2025.