Speed of 2D Array Allocation in C

21 x 21 local average

Compiler optimization: gcc –O2 ...

Did not filter the pixels near the borders.

Pseudo-2D arrays were dynamically allocated using the matalloc function.

When using pseudo-2D arrays, if we use pointers for the innermost loop, then it runs a bit faster, but the code length for the main loops increases from 9 lines to 13 lines.

Static arrays and variable-length arrays are allocated on the stack, so they can result in a segmentation fault if the arrays are too large.

	510 x 512 img	**1200 x 1920 img**
Pseudo-2D arrays	59 ms	448 ms
Pseudo-2D arrays with ptrs for innermost loop	47 ms	432 ms
Static 1k x 1k arrays	54 ms	img too big
Static 2k x 2k arrays	segm fault	segm fault
Variable-length arrays	68.5 ms	segm fault