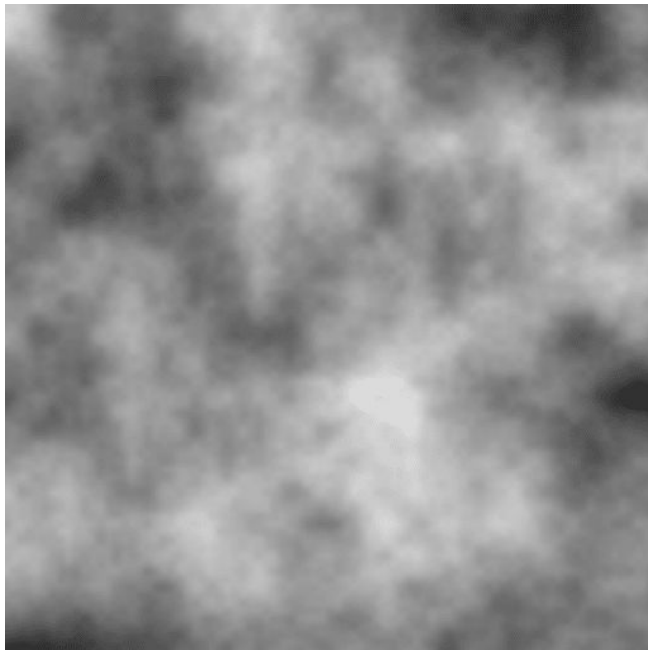
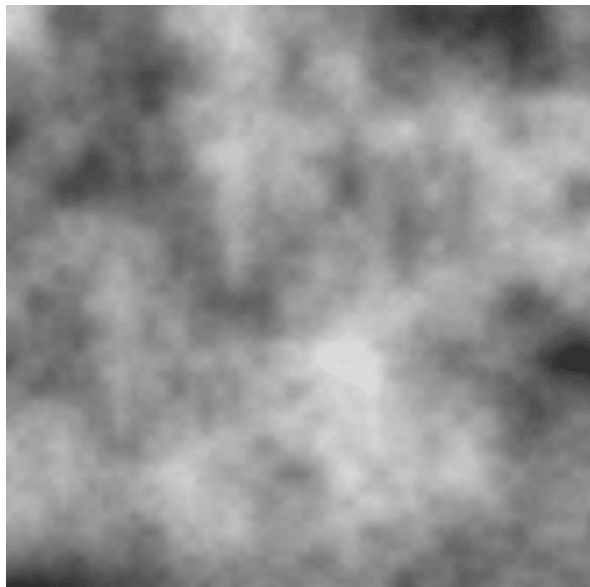


# Perlin Noise

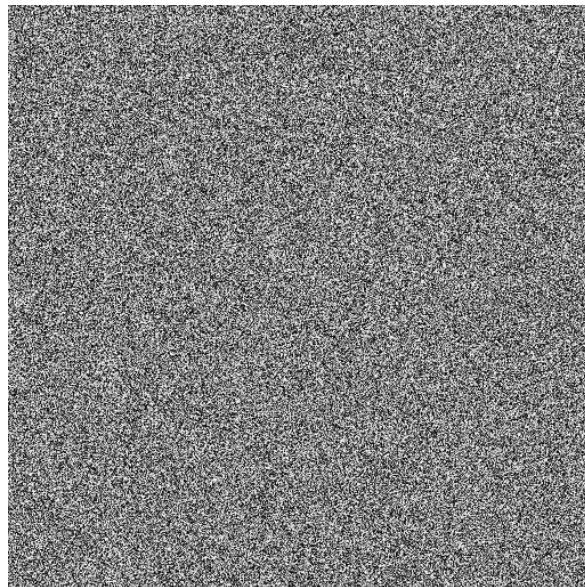


## Perlin Noise



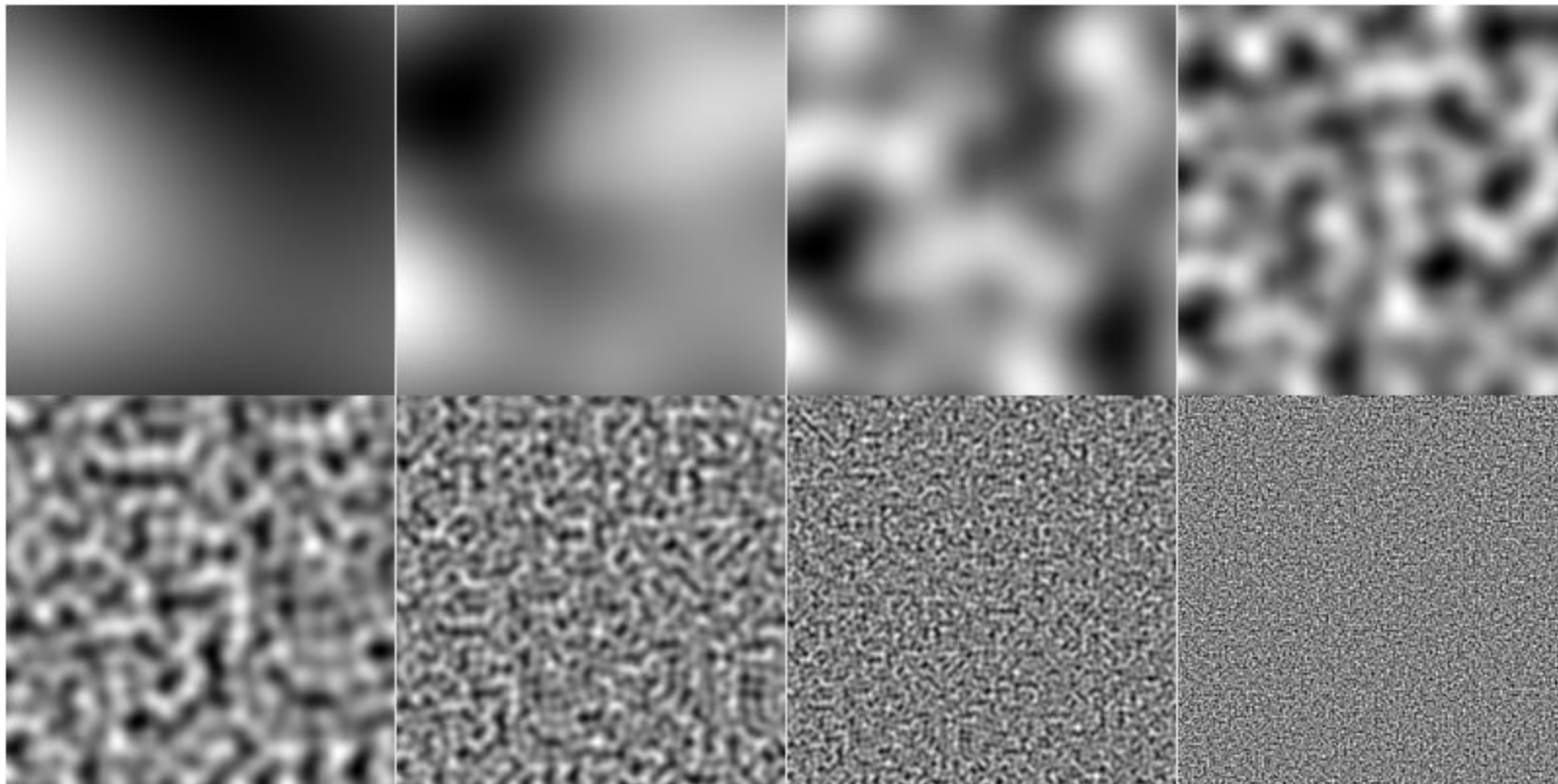
```
for (int x = 0; x < size; x++) {  
    for (int y = 0; y < size; y++) {  
        value[x][y] = perlin2d(x, y);  
    }  
}
```

## Noise

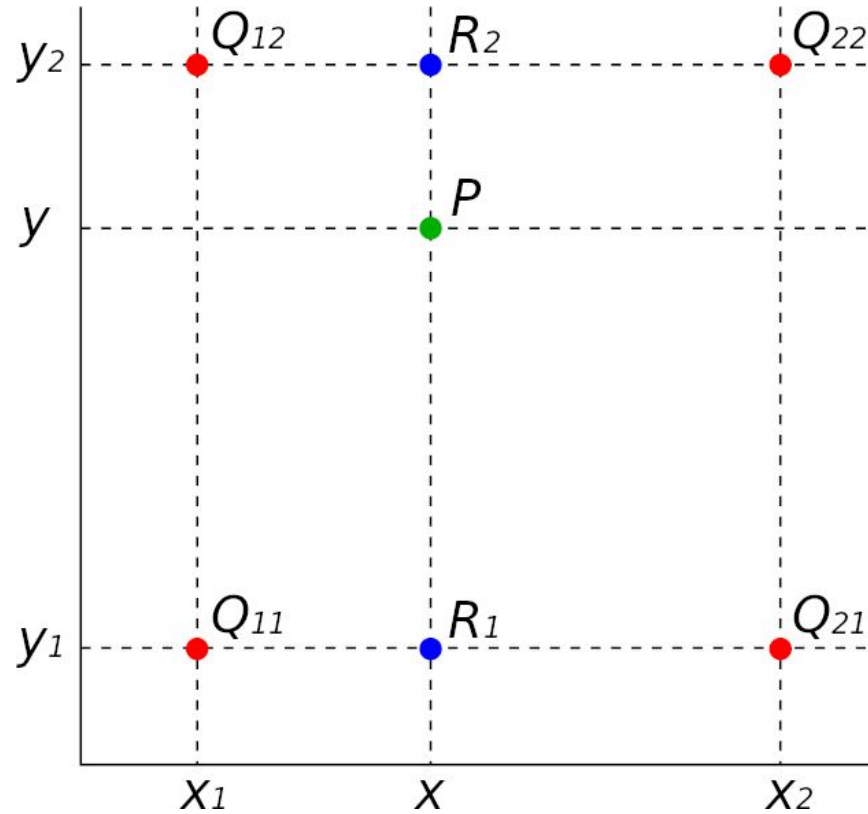


```
for (int x = 0; x < size; x++) {  
    for (int y = 0; y < size; y++) {  
        value[x][y] = random();  
    }  
}
```

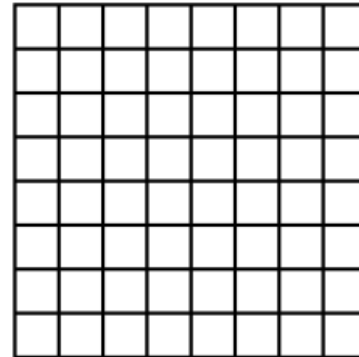
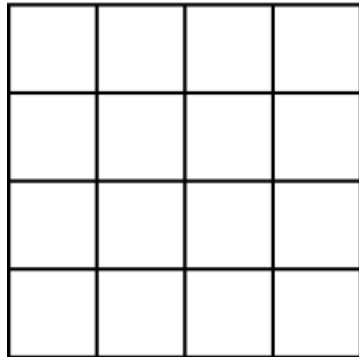
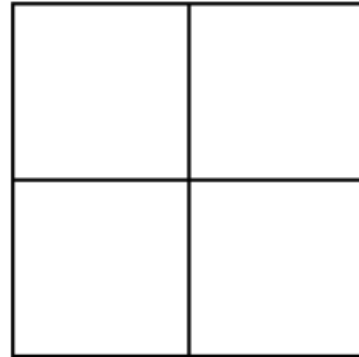
## Perlin Noise “Octaves”



# Bilineare Interpolation

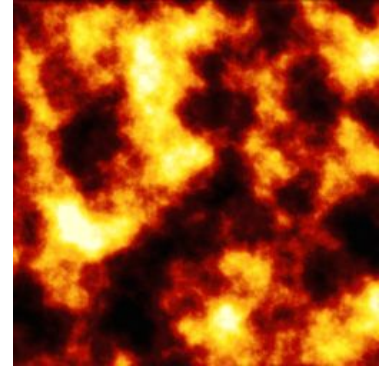


# Raster



# Anwendungsgebiete

- 1-dimensional
  - Simulation von Aktienkursen
  - Computergenerierte Handschrift
- 2-dimensional
  - Generieren von Texturen
  - Heightmaps
- 3-dimensional
  - Generierung von echtem 3D-Terrain
  - Volumetrische Wolken



# CPU vs GPU

Größe (quadratisch)	CPU Rechenzeit (s)	GPU Rechenzeit (s)
128	0.002728	0.000141
256	0.010805	0.000143
512	0.042973	0.000146
1024	0.171288	0.000993
2048	0.684804	0.003368
4096	2.743479	0.010227
8192	10.965707	0.034869

Zeiten gemittelt über 50 Ausführungen. CPU nutzt nur einen Thread.