



Cairo University
Faculty of Engineering

Department of Computer
Engineering



Cognitive Robotics

Assignment 1

Submitted to

Eng. Mohamed Shawky

Submitted by

| Name | Sec | BN | Code |
|--------------------------|-----|----|---------|
| Ahmed Hany Farouk Tawfik | 1 | 10 | 9202213 |

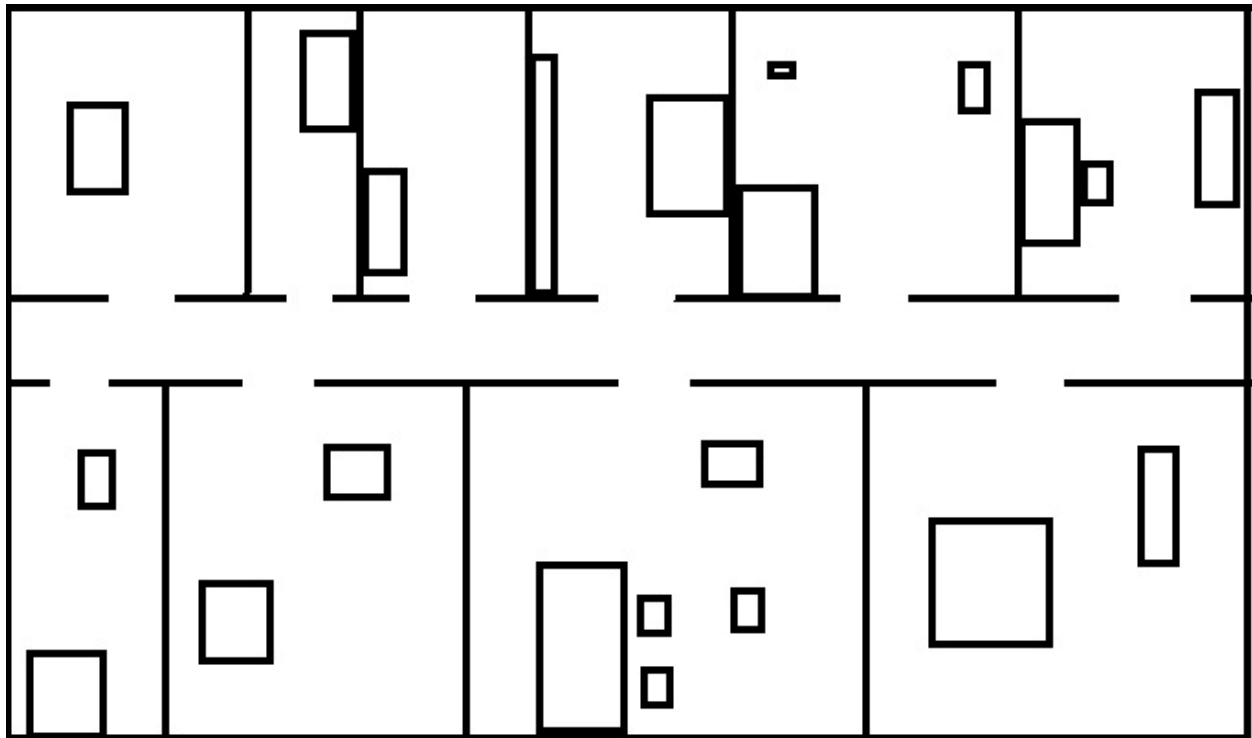
Requirement 1:

With initial Pose

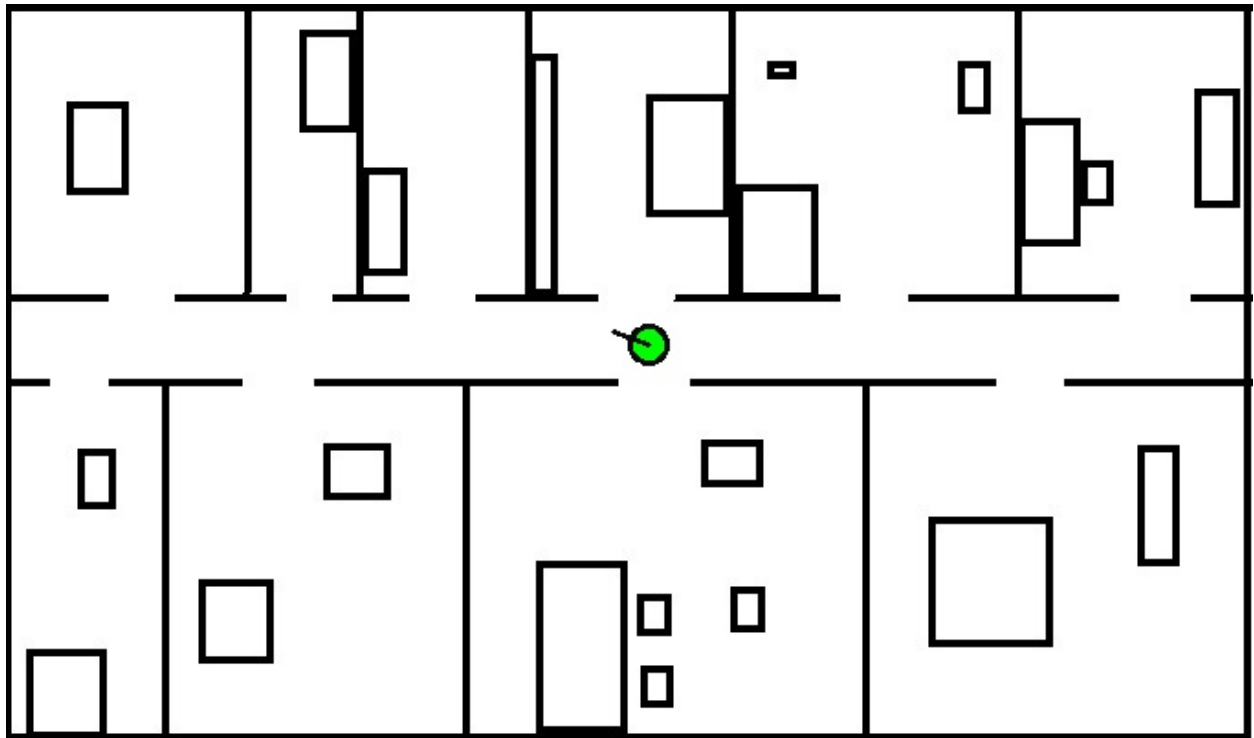
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position = (350, 185)
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angle = 200

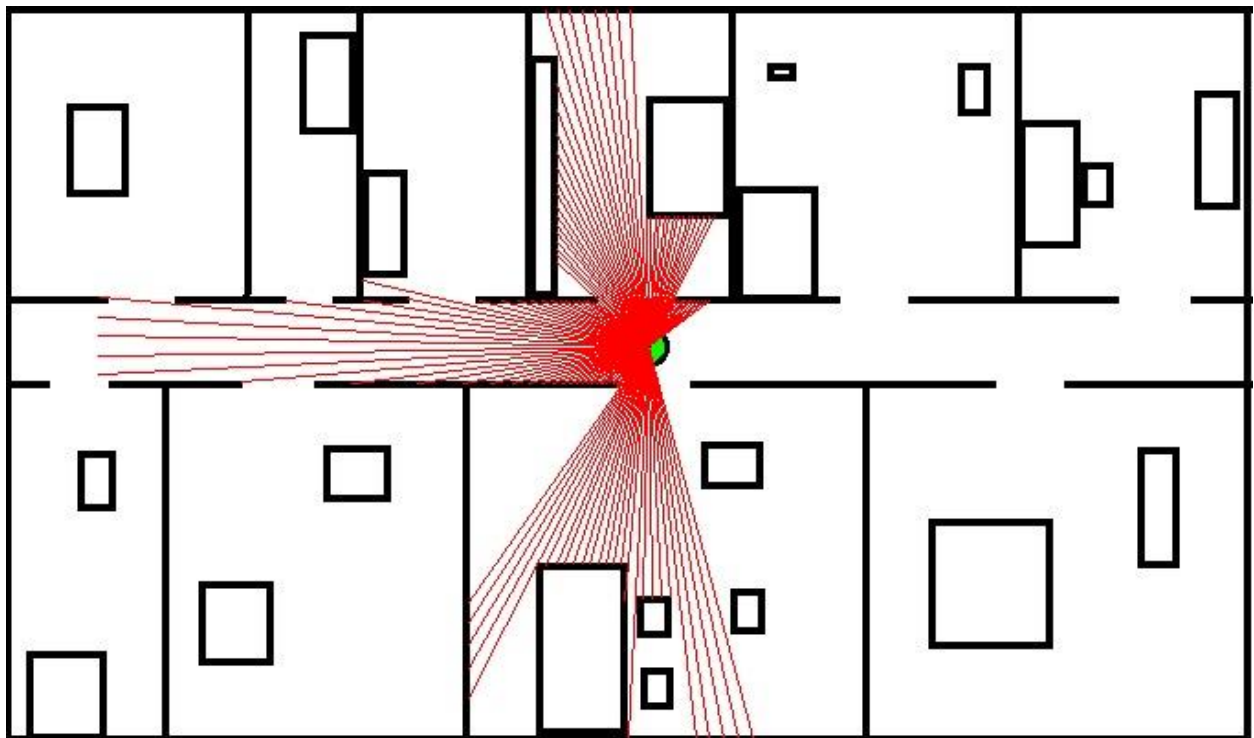
The map



After Drawing Robot

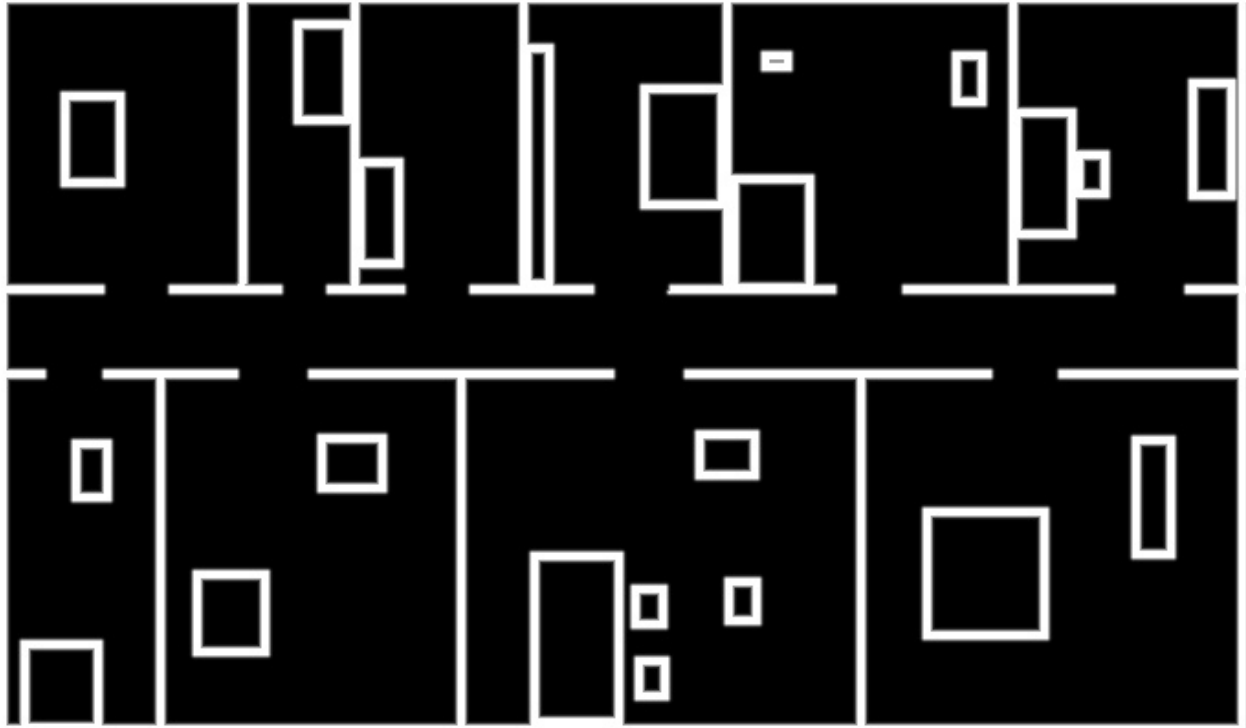


After Ray Casting



Requirement 2:

Likelihood filed at $\sigma = 1$



Likelihood filed at $\sigma = 5$



Likelihood filed at $\sigma = 10$



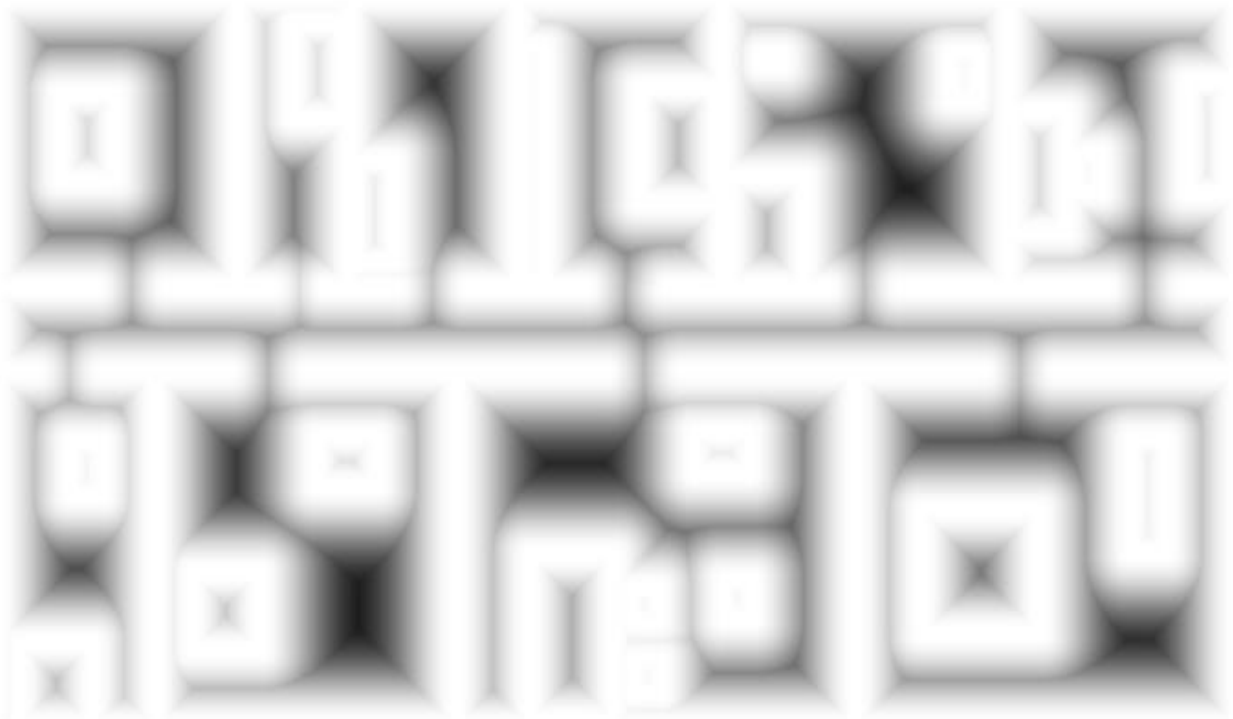
Likelihood filed at $\sigma = 15$



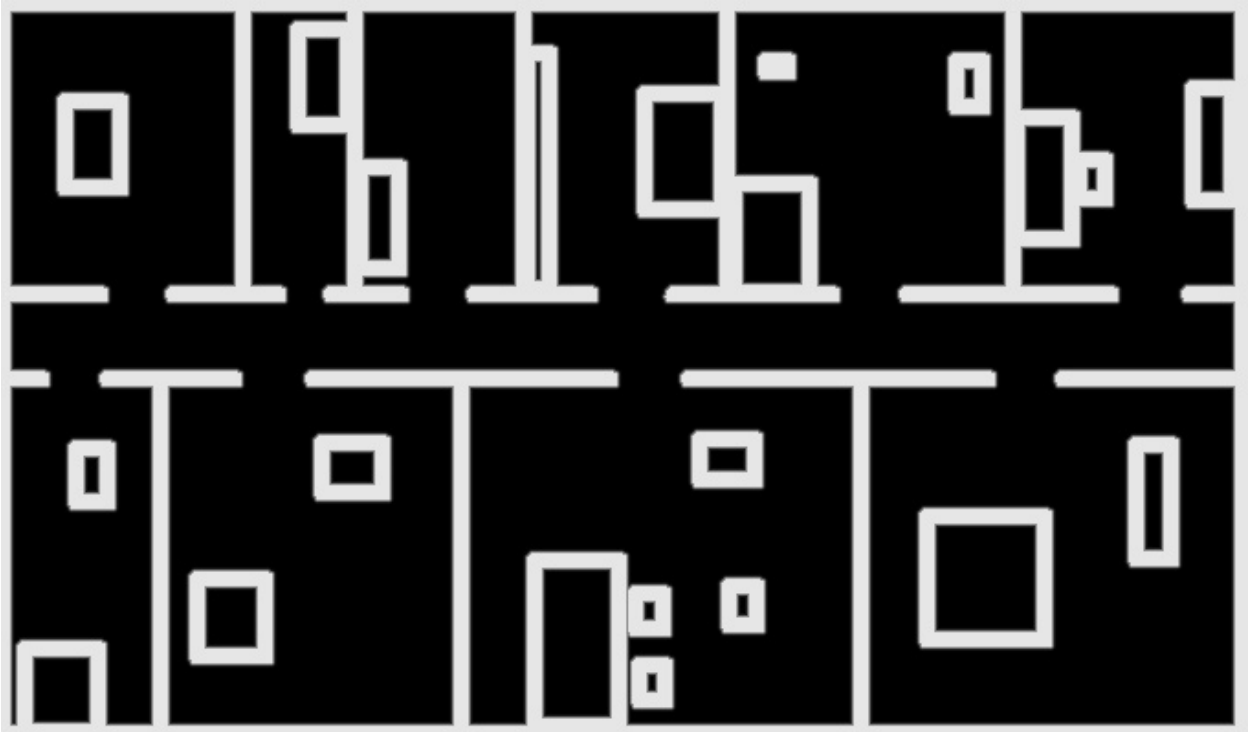
Likelihood filed at $\sigma = 20$



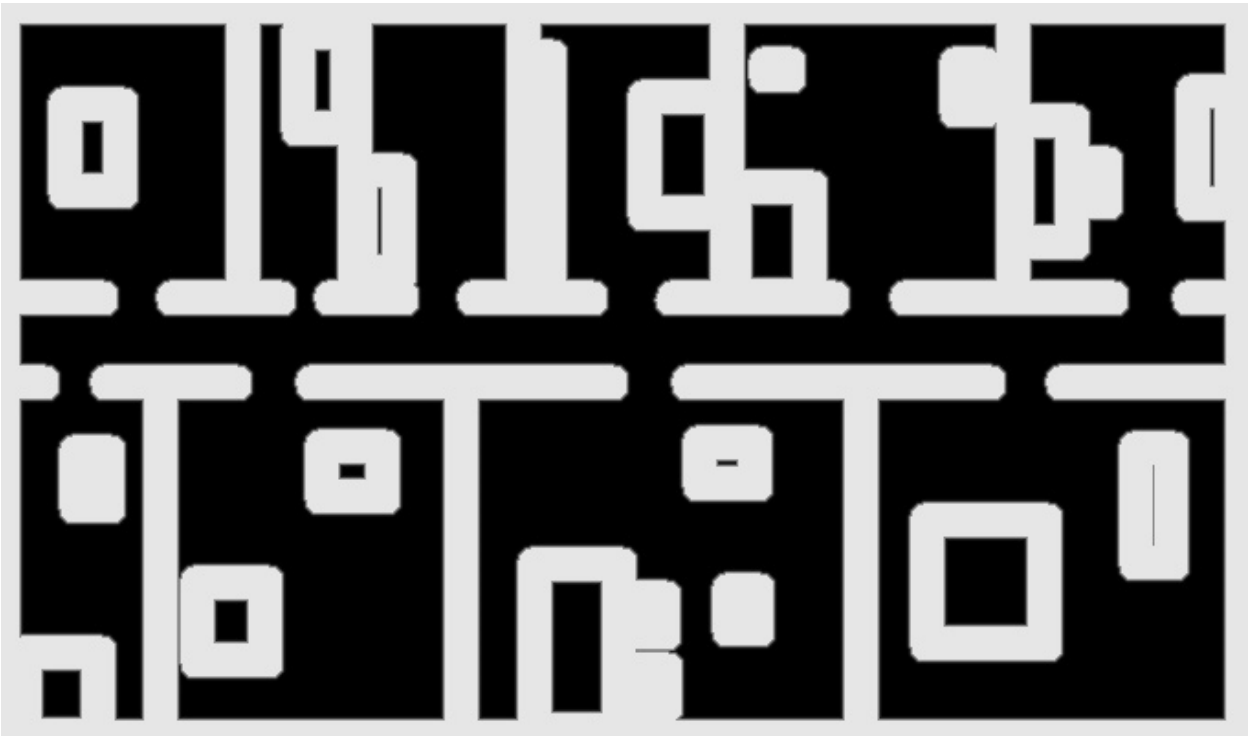
Likelihood filed at $\sigma = 25$



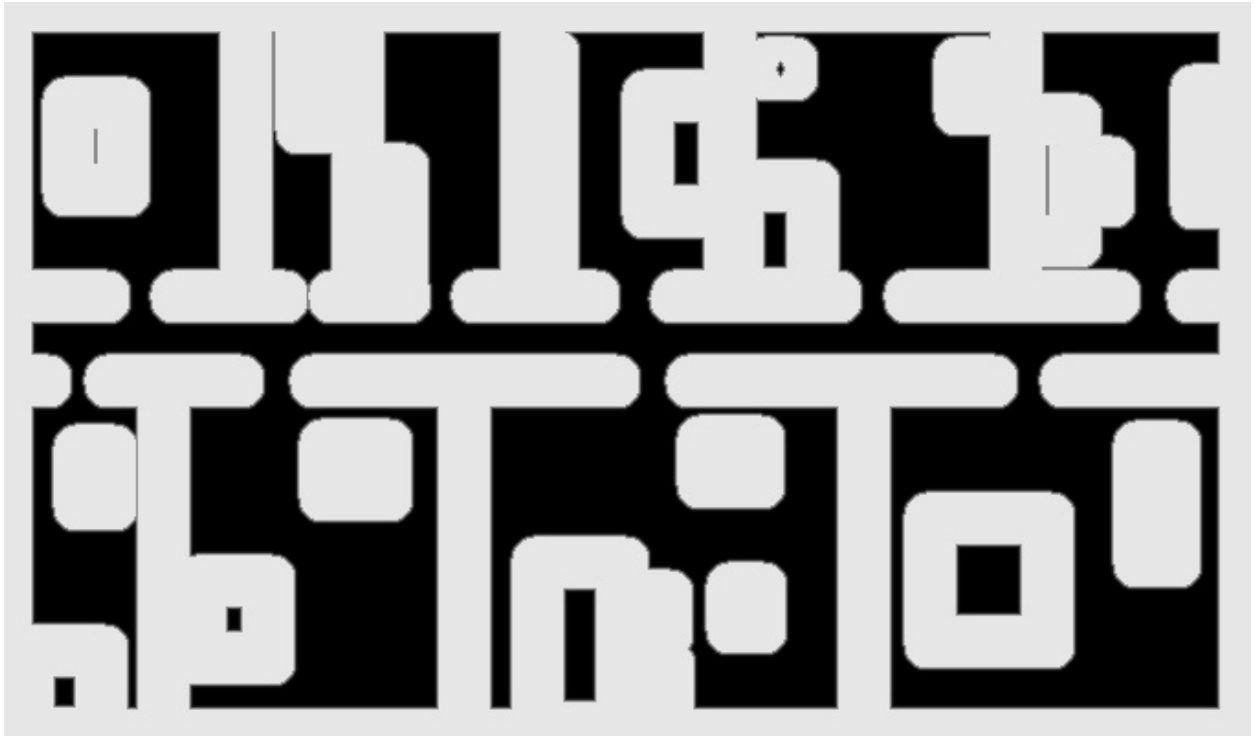
Probability map of distance = 0.1 and sigma = 1



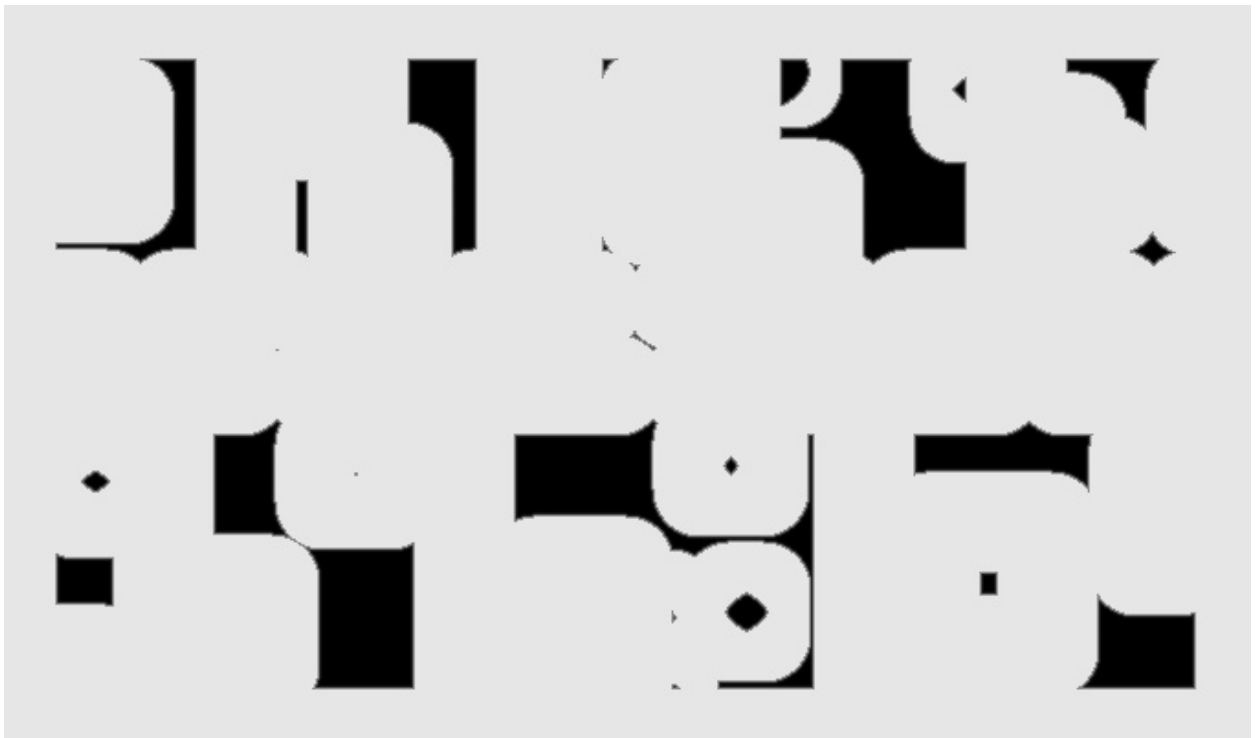
Probability map of distance = 0.3 and sigma = 1



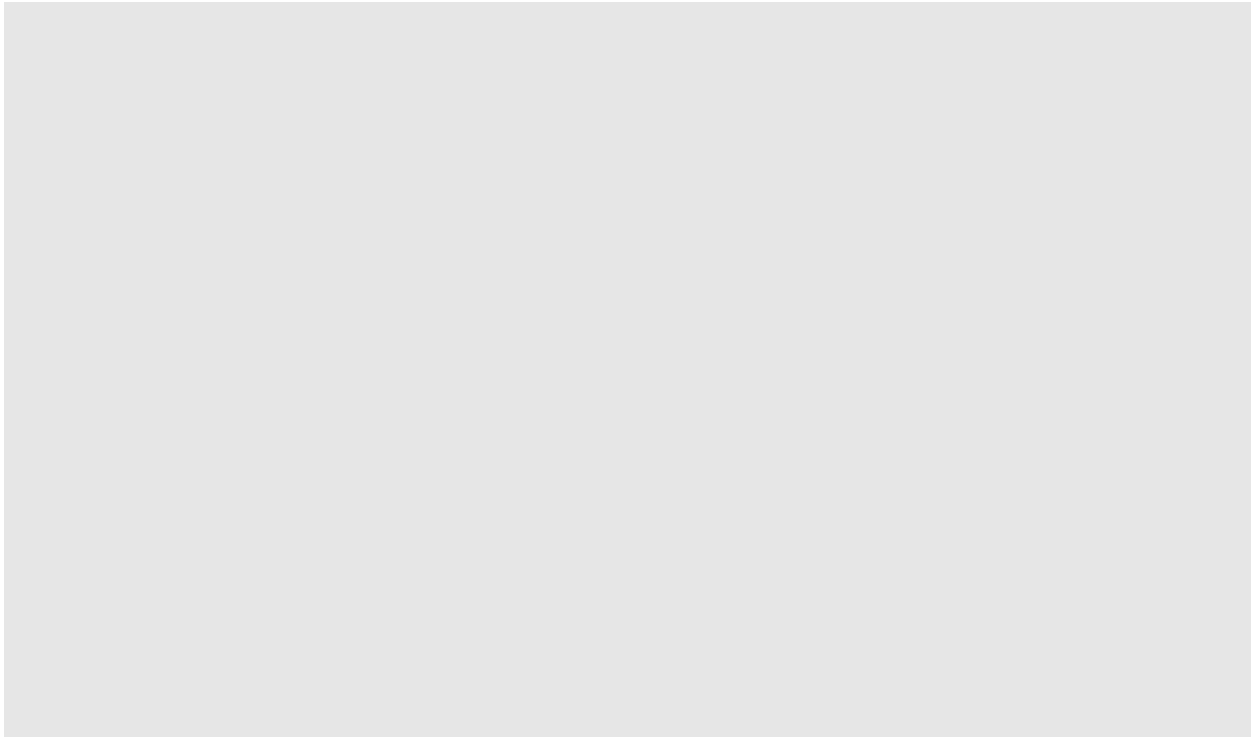
Probability map of distance = 0.5 and sigma = 1



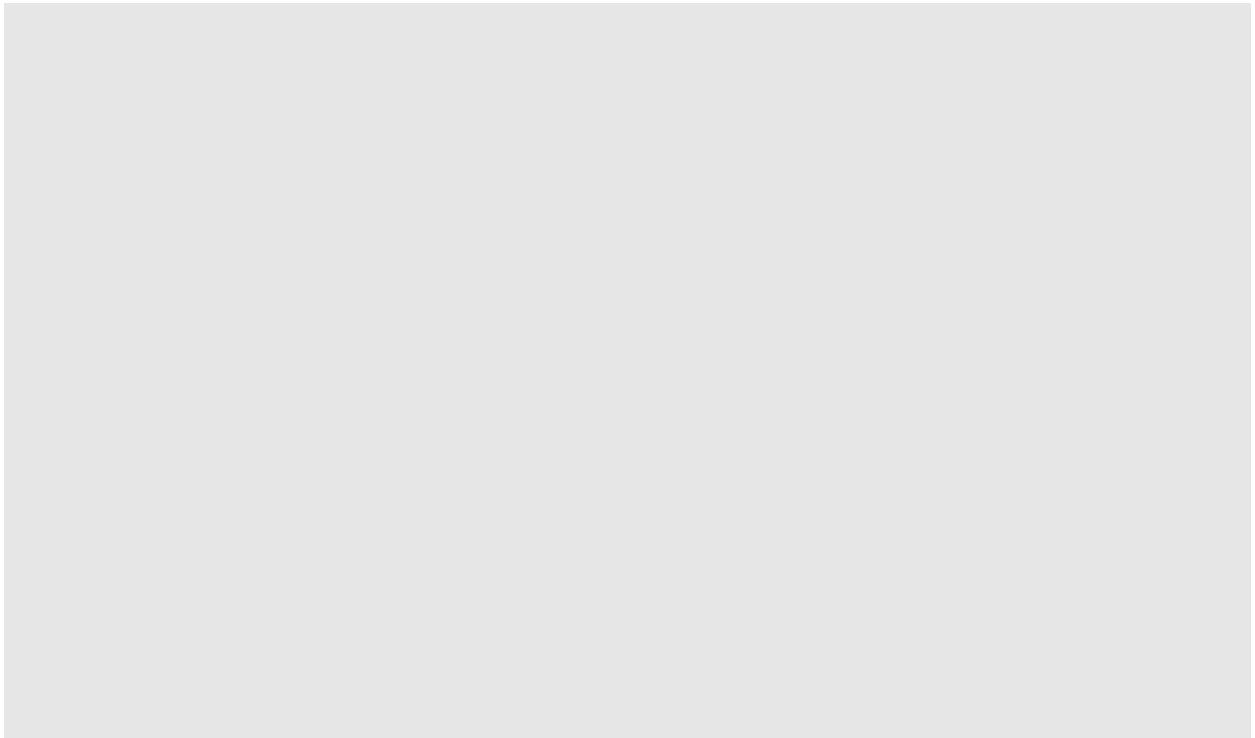
Probability map of distance = 1 and sigma = 1



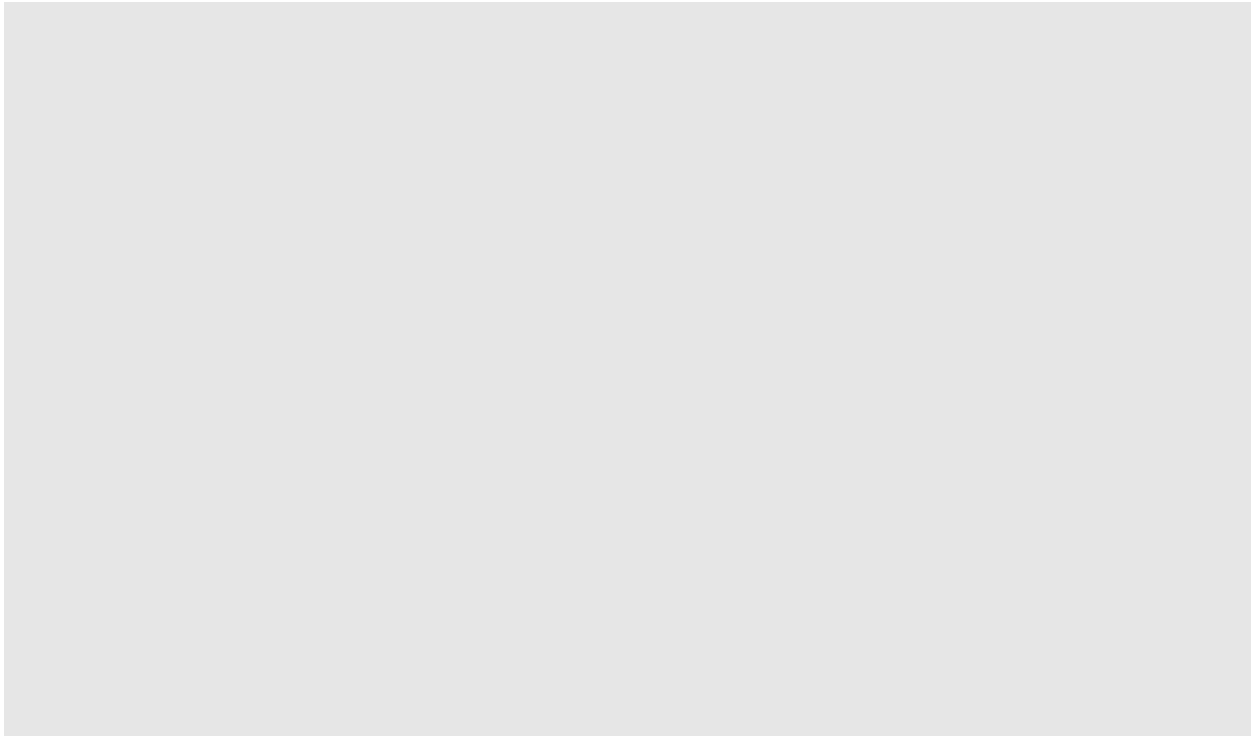
Probability map of distance = 3 and sigma = 1



Probability map of distance = 5 and sigma = 1



Probability map of distance = 10 and sigma = 1



Probability map of distance = 0.1 and sigma = 5



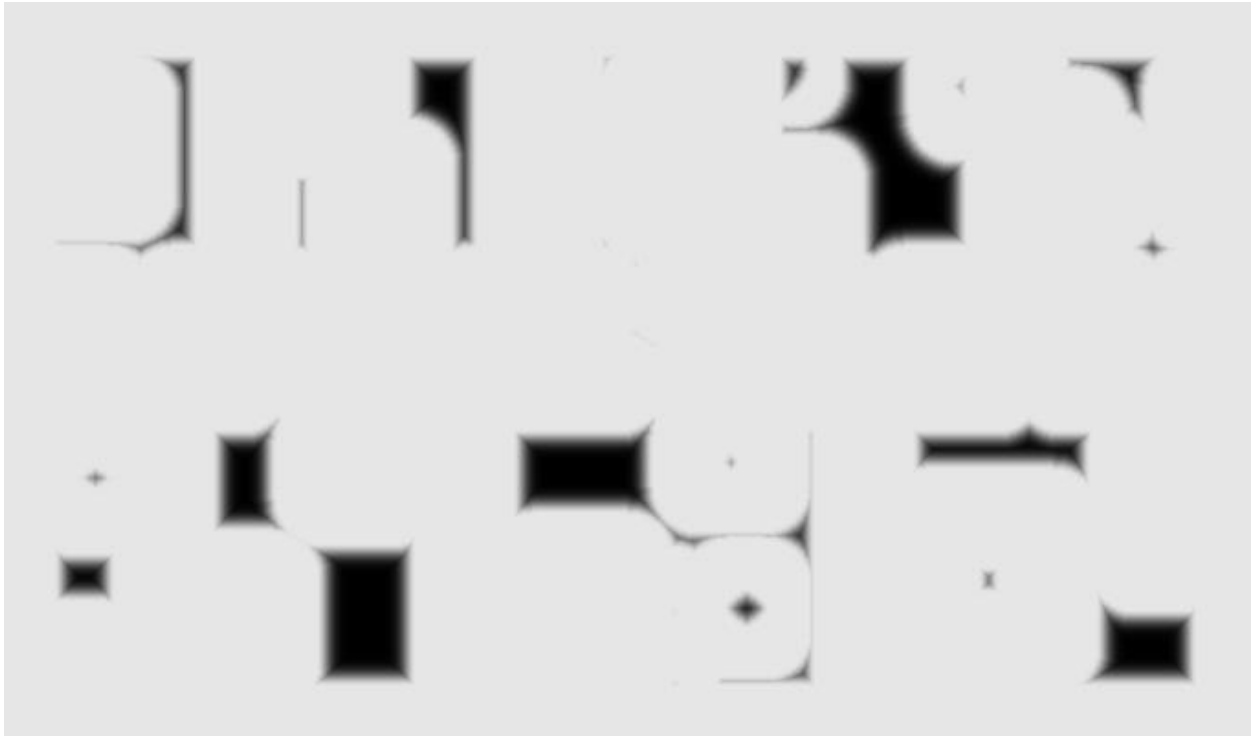
Probability map of distance = 0.3 and sigma = 5



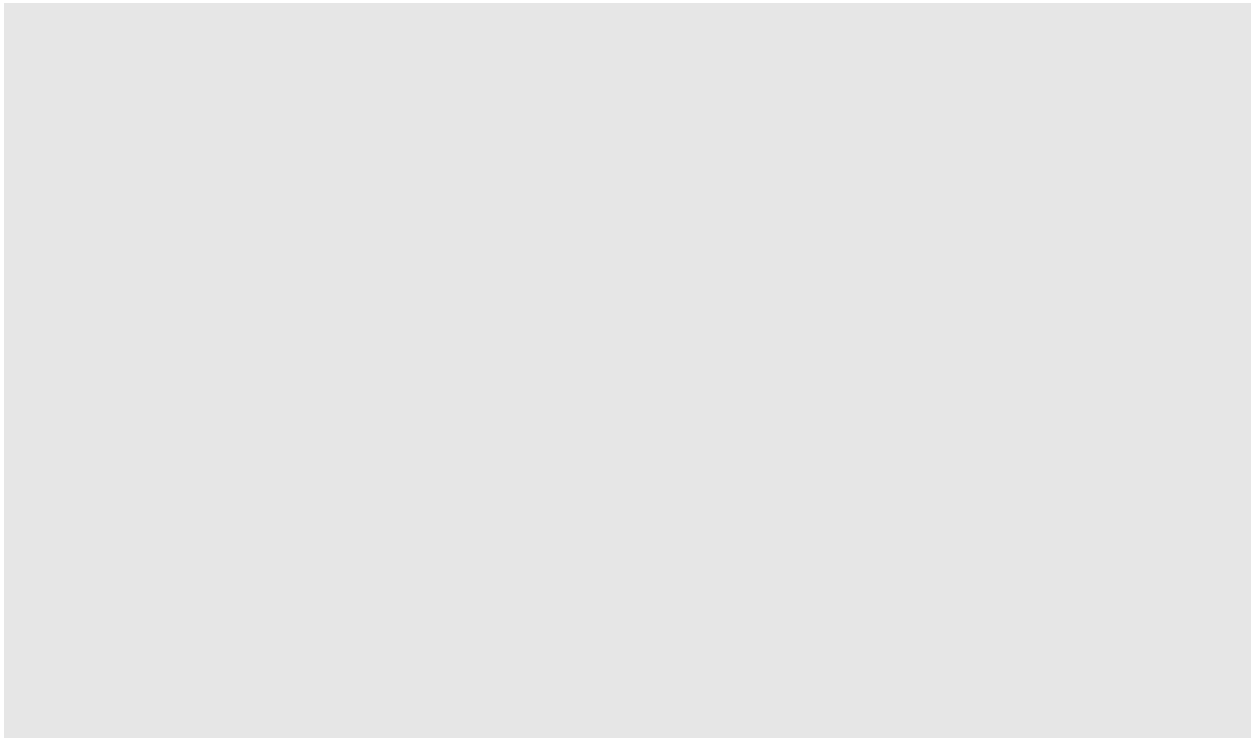
Probability map of distance = 0.5 and sigma = 5



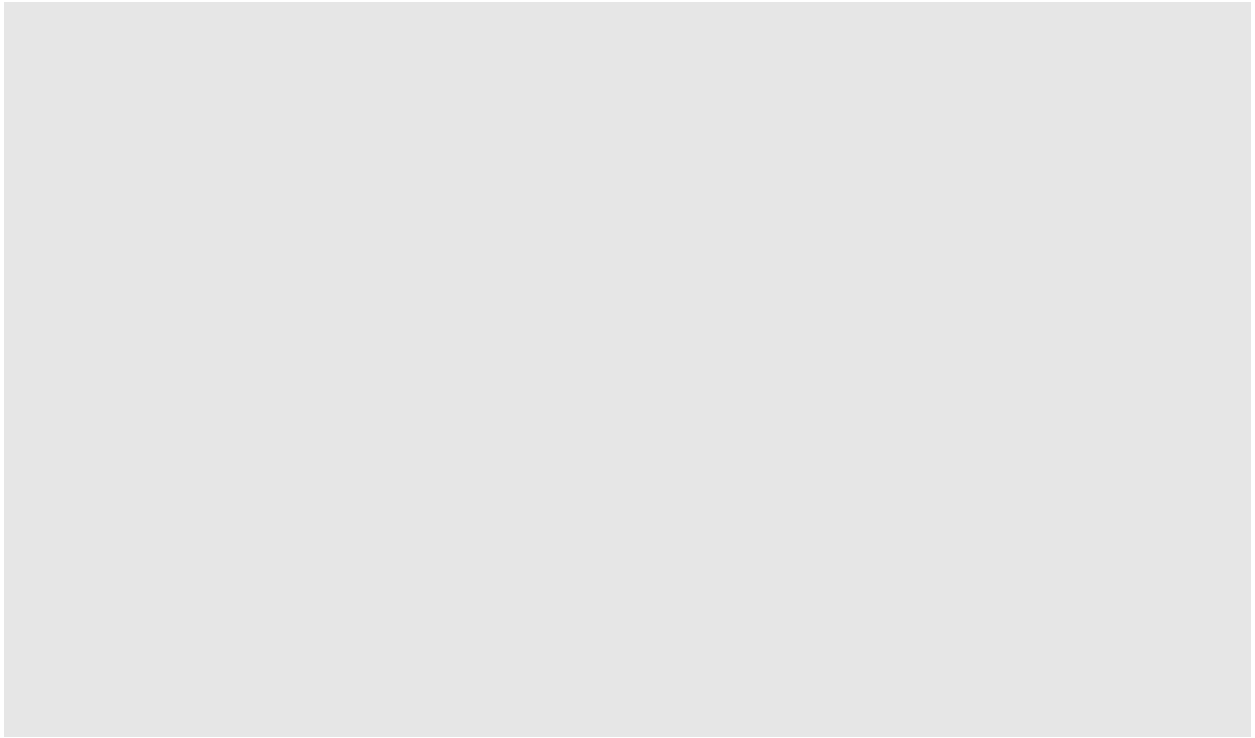
Probability map of distance = 1 and sigma = 5



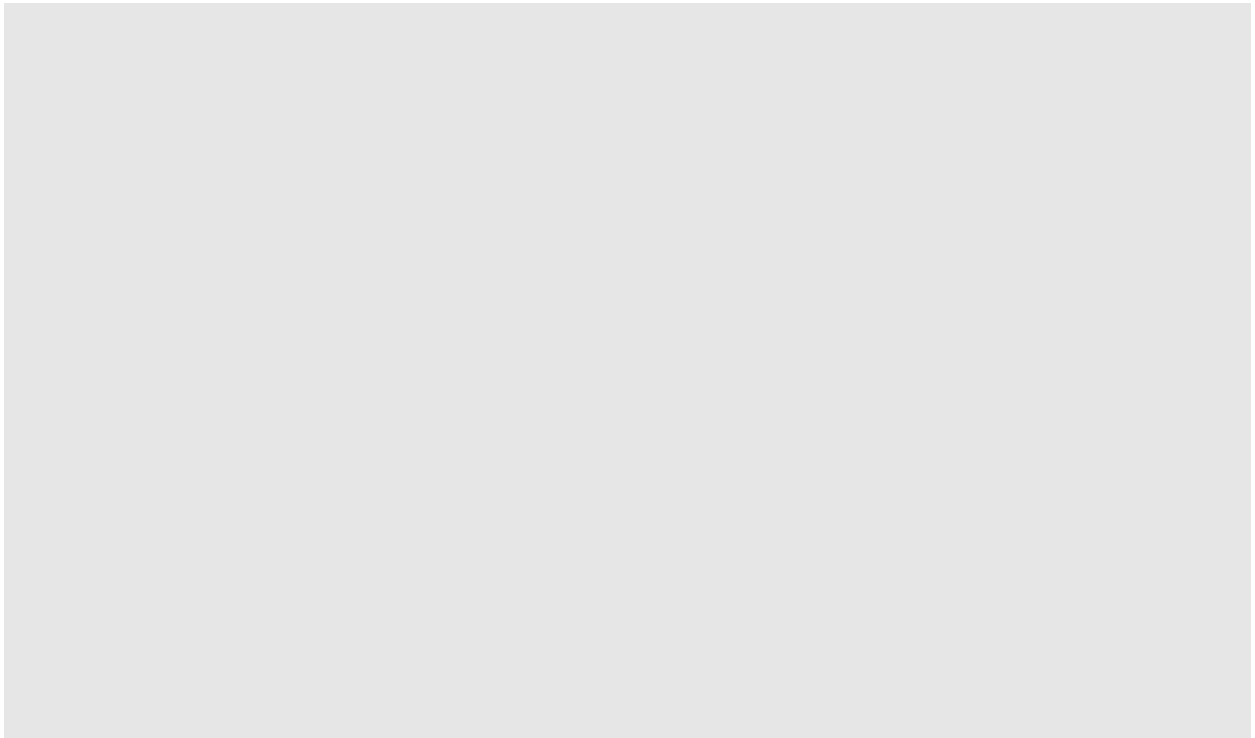
Probability map of distance = 3 and sigma = 5



Probability map of distance = 5 and sigma = 5



Probability map of distance = 10 and sigma = 5



Probability map of distance = 0.1 and sigma = 10



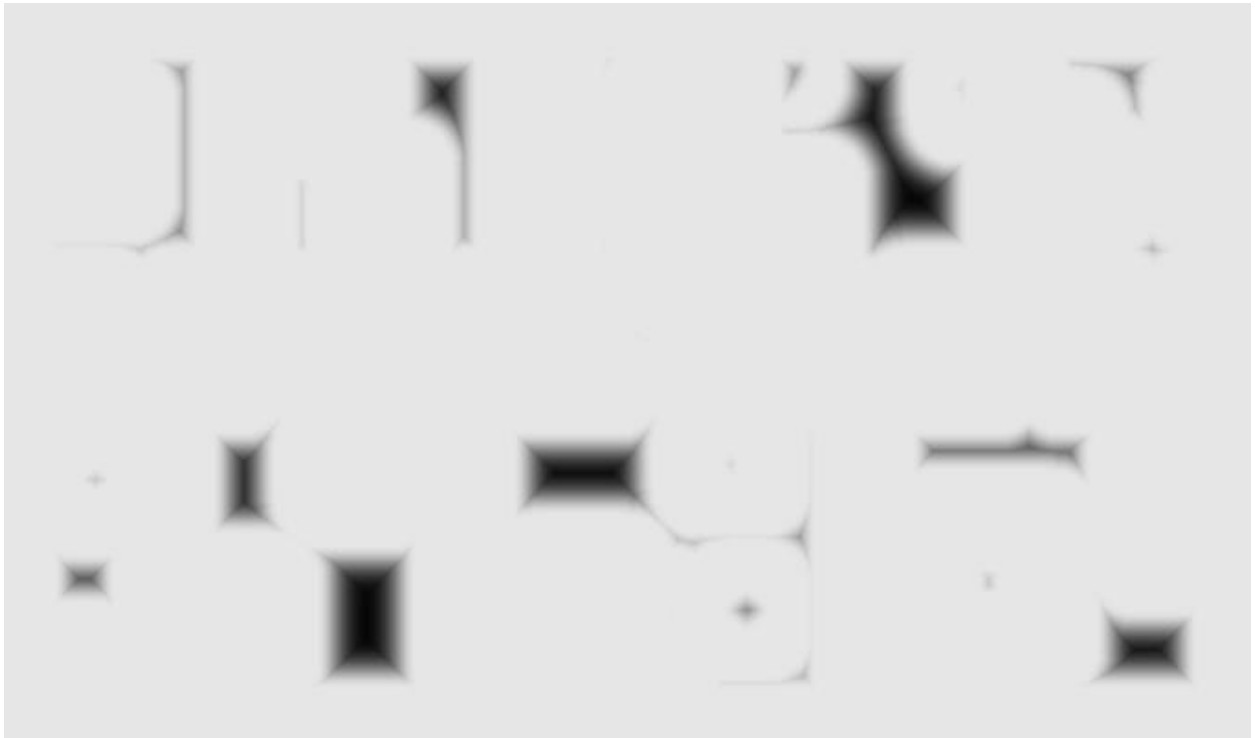
Probability map of distance = 0.3 and sigma = 10



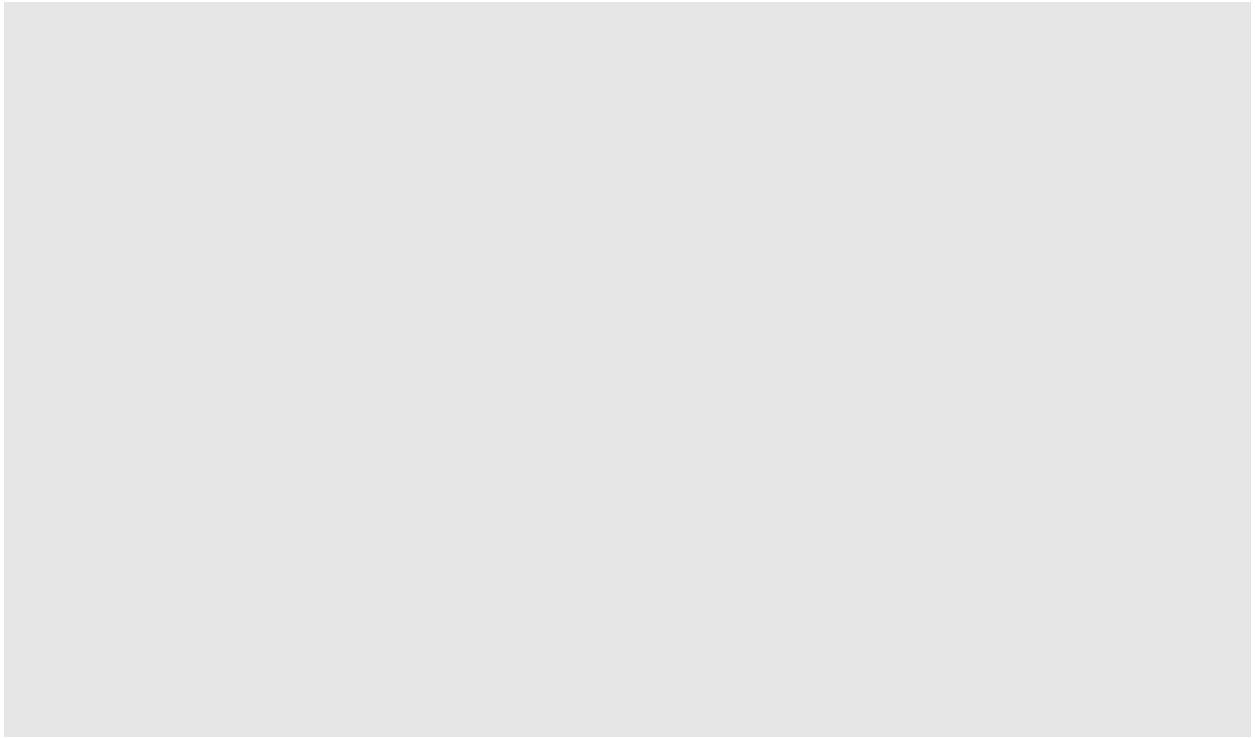
Probability map of distance = 0.5 and sigma = 10



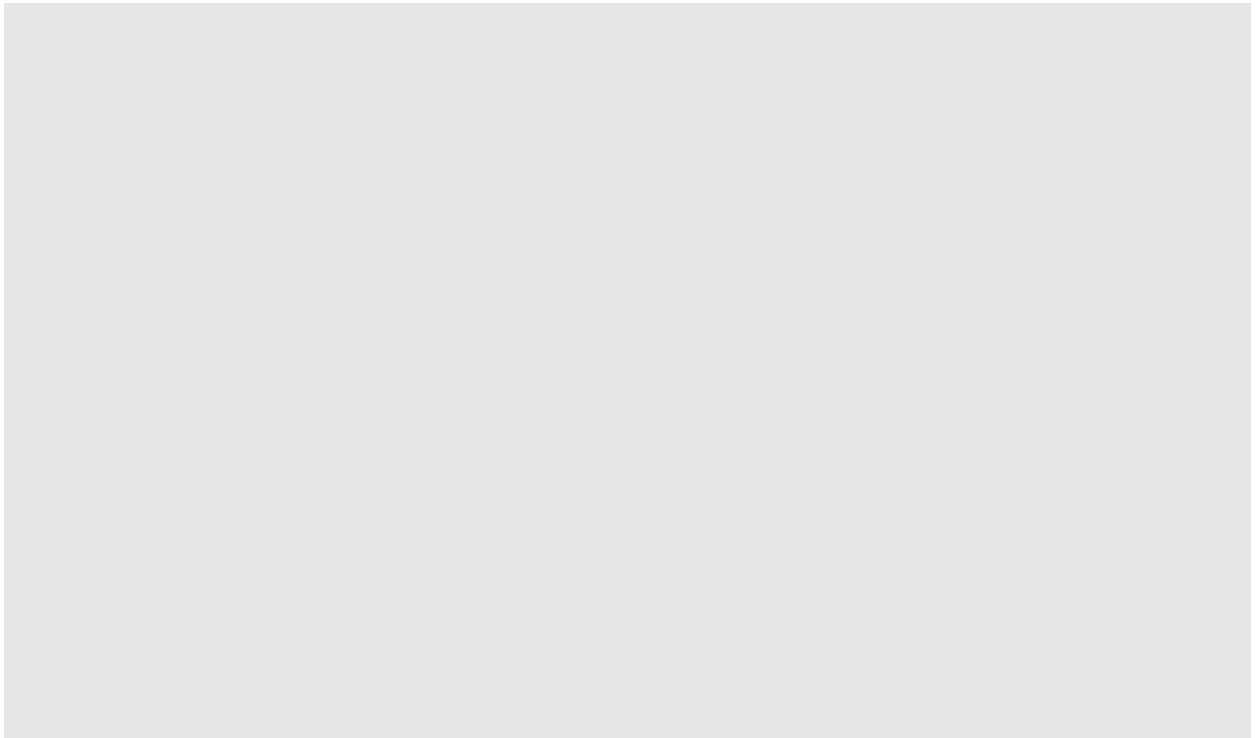
Probability map of distance = 1 and sigma = 10



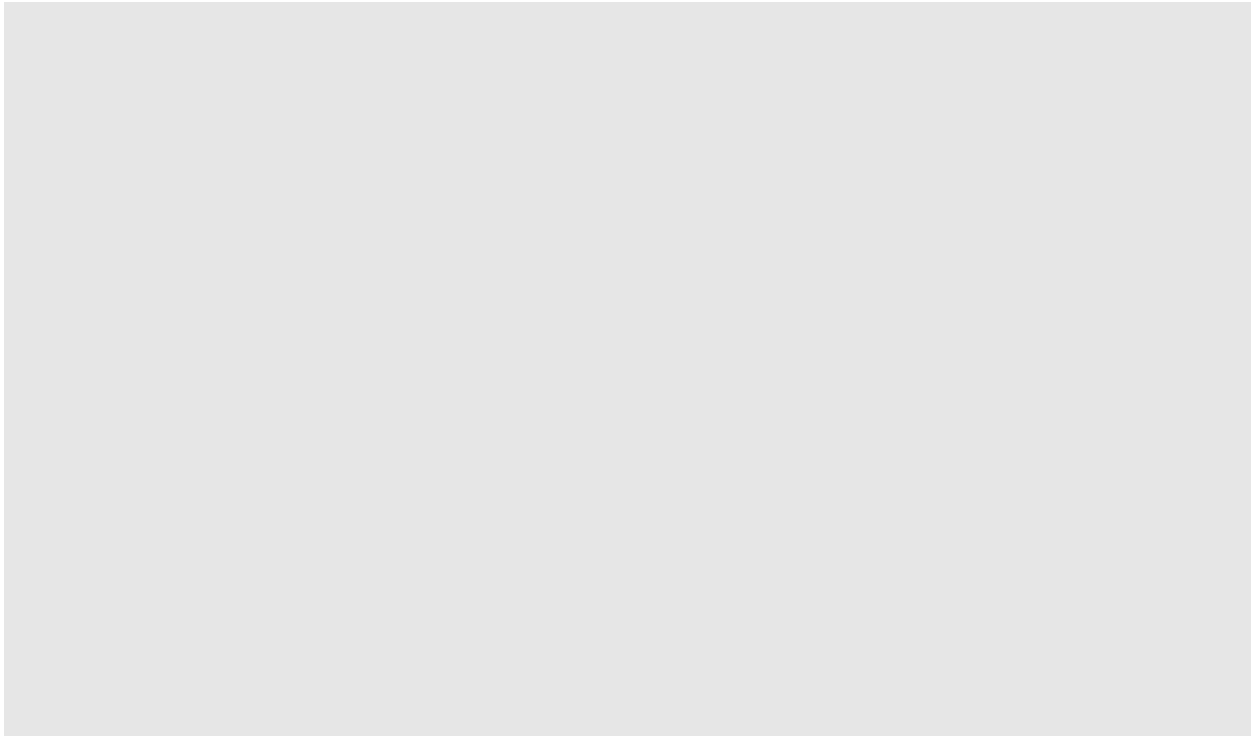
Probability map of distance = 3 and sigma = 10



Probability map of distance = 5 and sigma = 10



Probability map of distance = 10 and sigma = 10



Probability map of distance = 0.1 and sigma = 15



Probability map of distance = 0.3 and sigma = 15



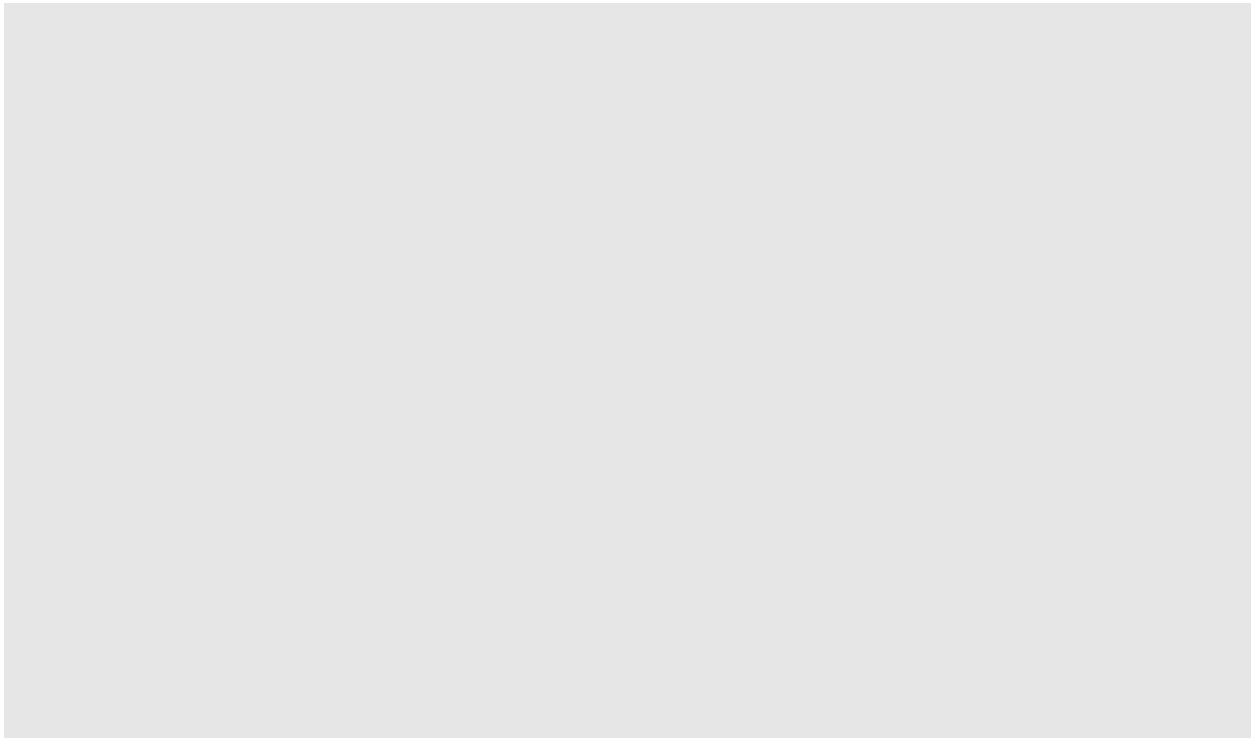
Probability map of distance = 0.5 and sigma = 15



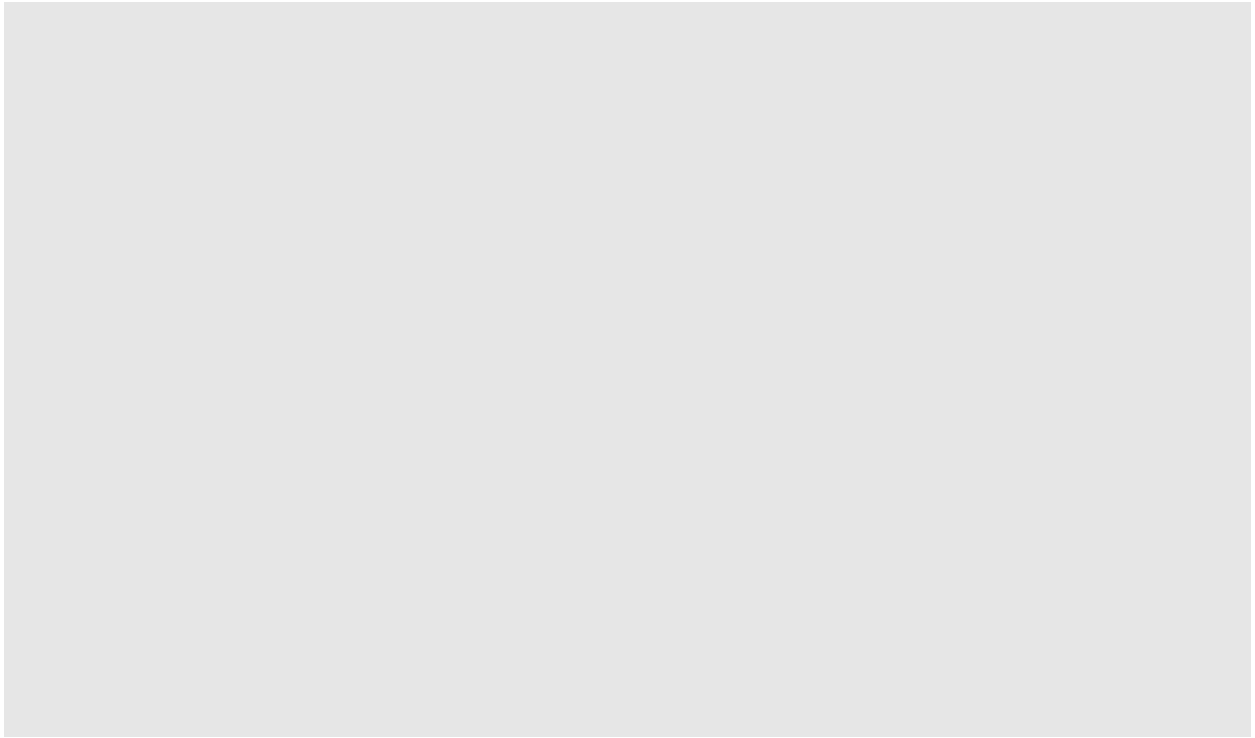
Probability map of distance = 1 and sigma = 15



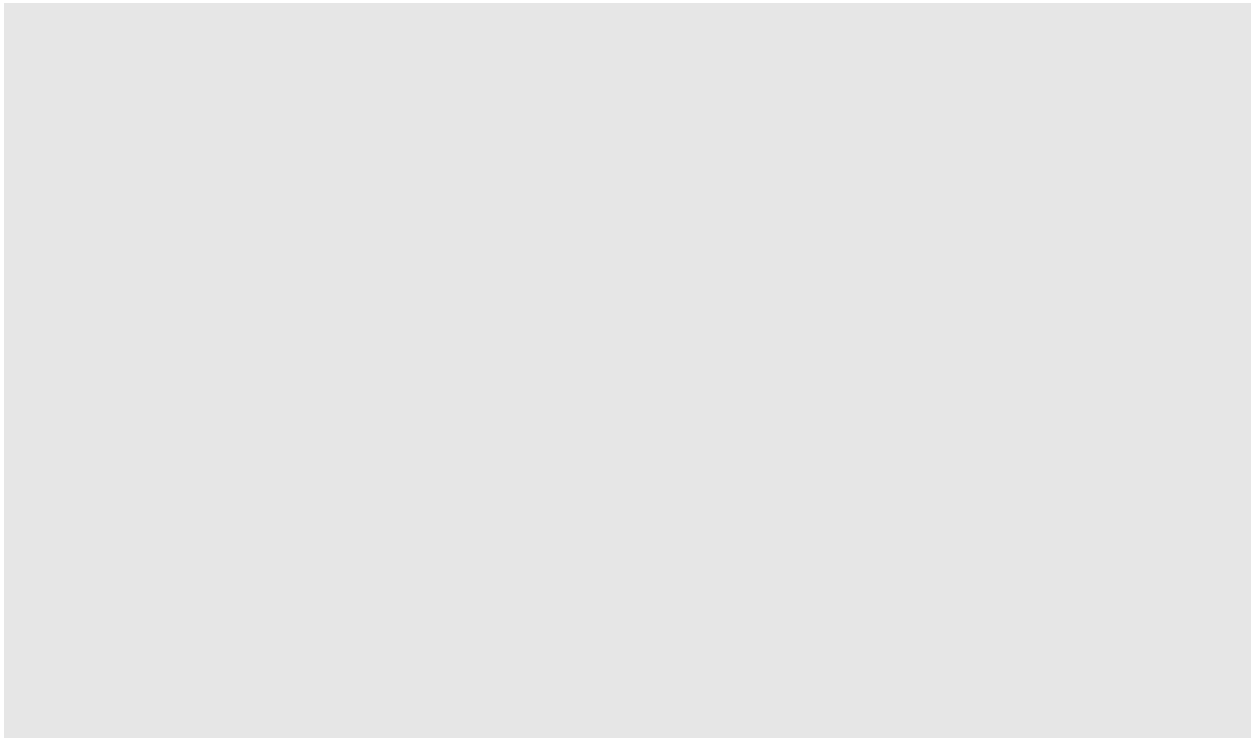
Probability map of distance = 3 and sigma = 15



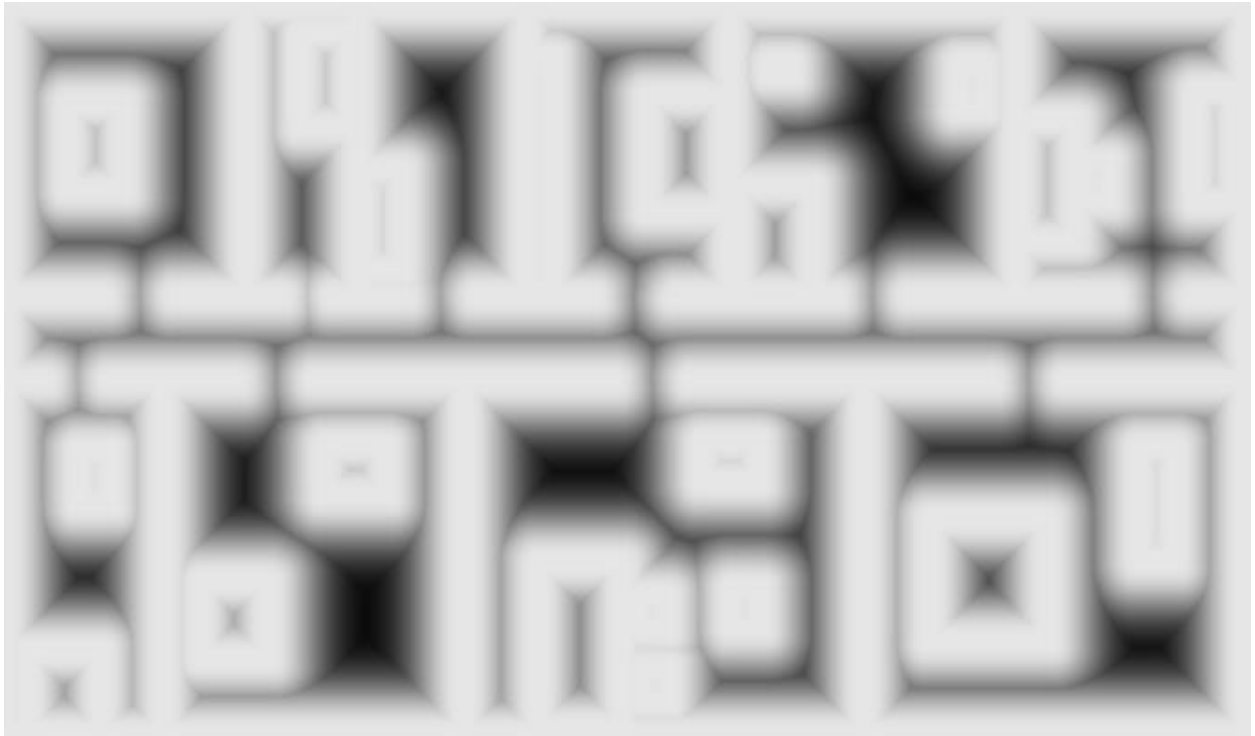
Probability map of distance = 5 and sigma = 15



Probability map of distance = 10 and sigma = 15



Probability map of distance = 0.1 and sigma = 20



Probability map of distance = 0.3 and sigma = 20



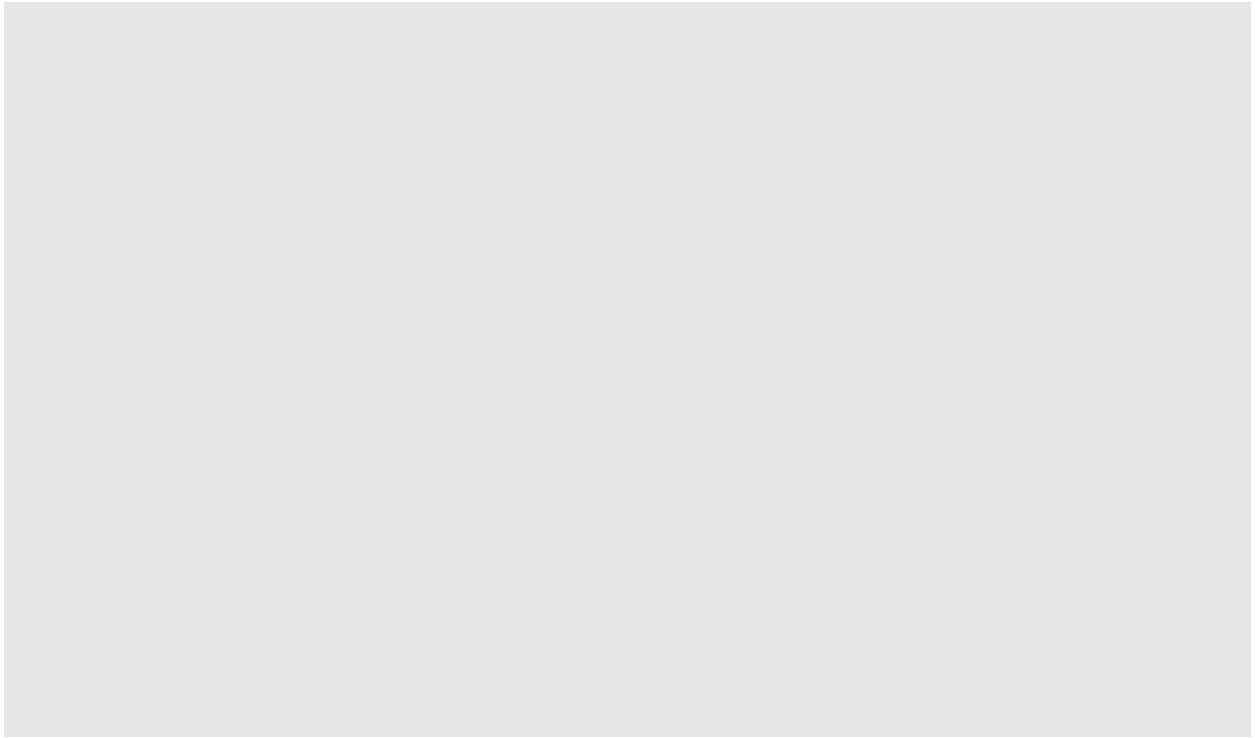
Probability map of distance = 0.5 and sigma = 20



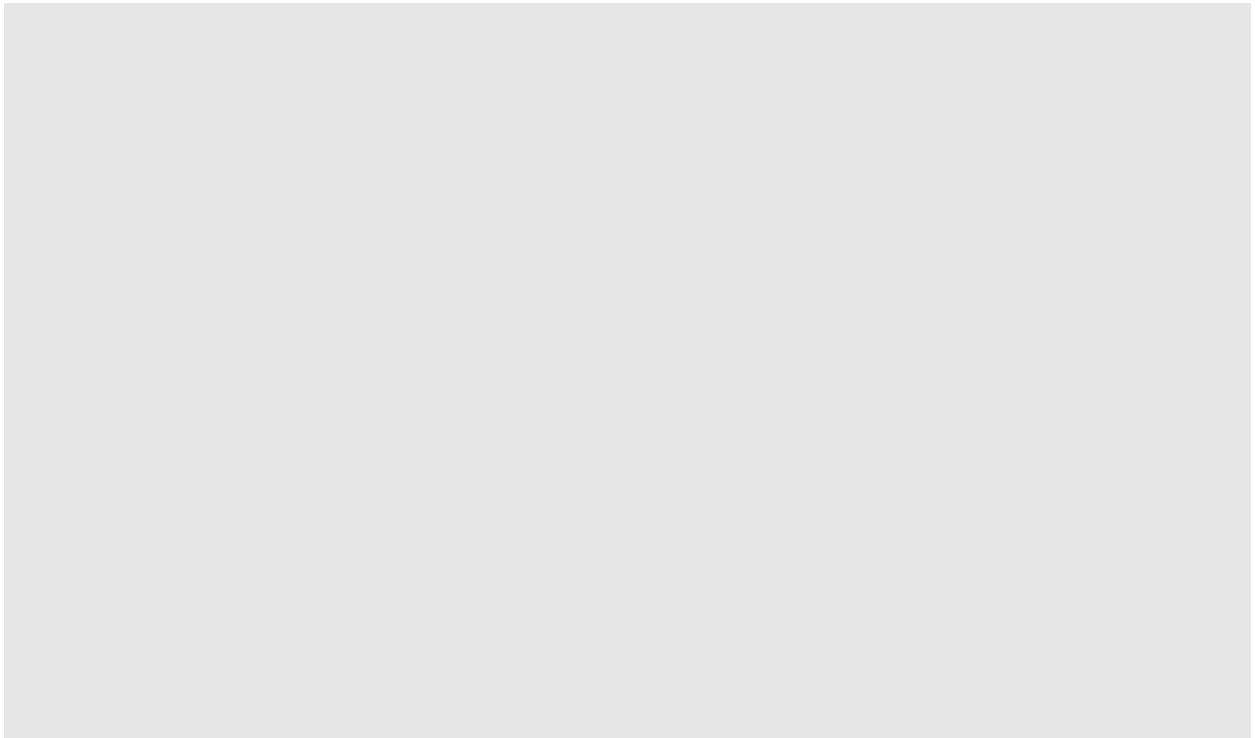
Probability map of distance = 1 and sigma = 20



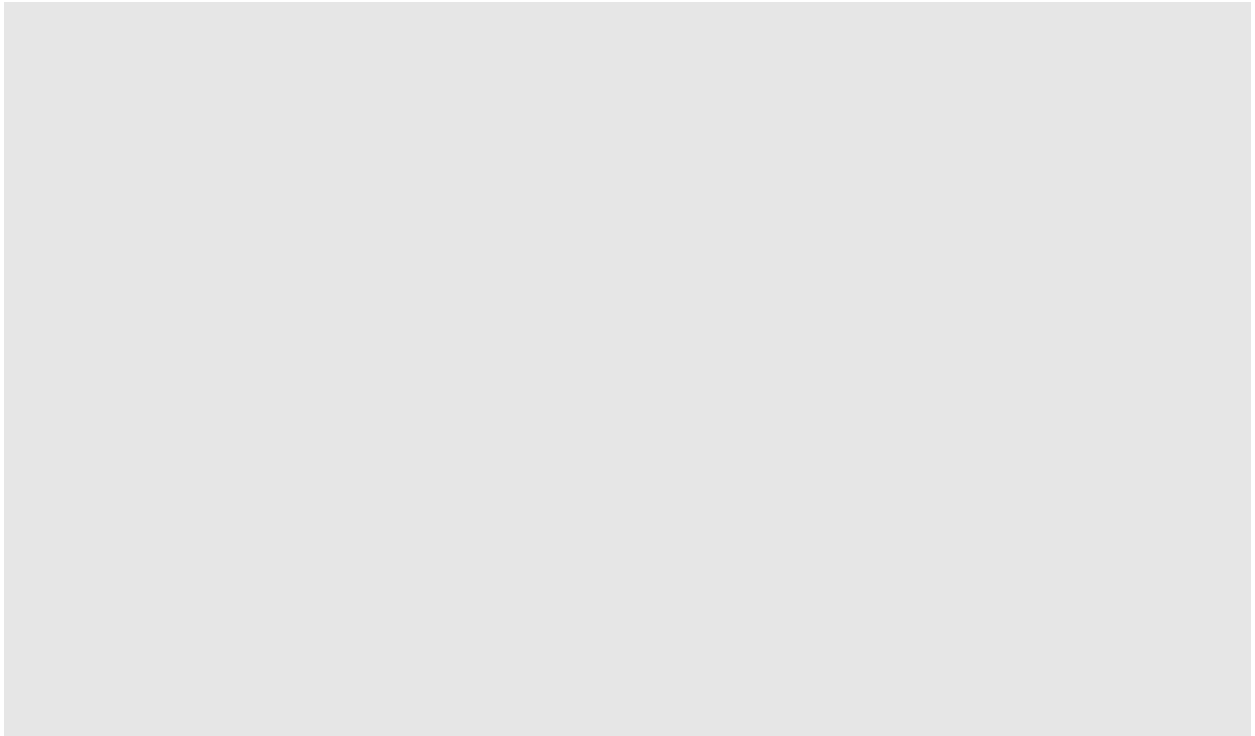
Probability map of distance = 3 and sigma = 20



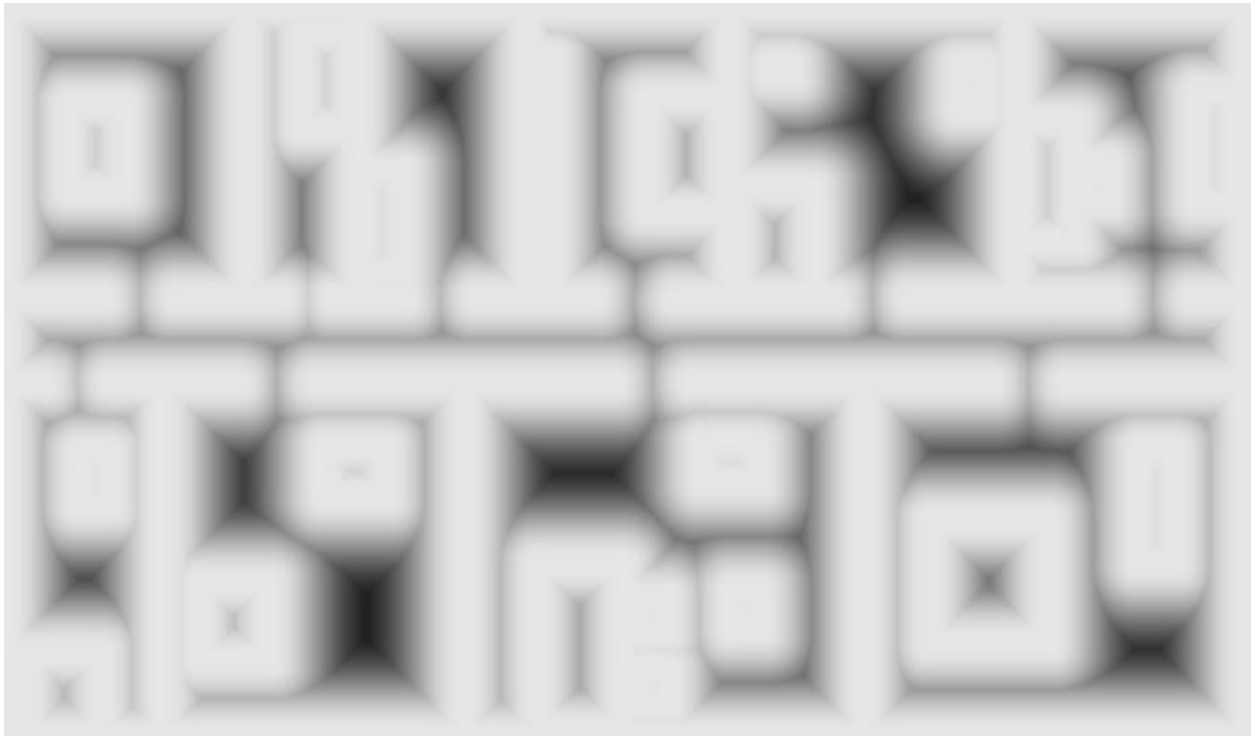
Probability map of distance = 5 and sigma = 20



Probability map of distance = 10 and sigma = 20



Probability map of distance = 0.1 and sigma = 25



Probability map of distance = 0.3 and sigma = 25



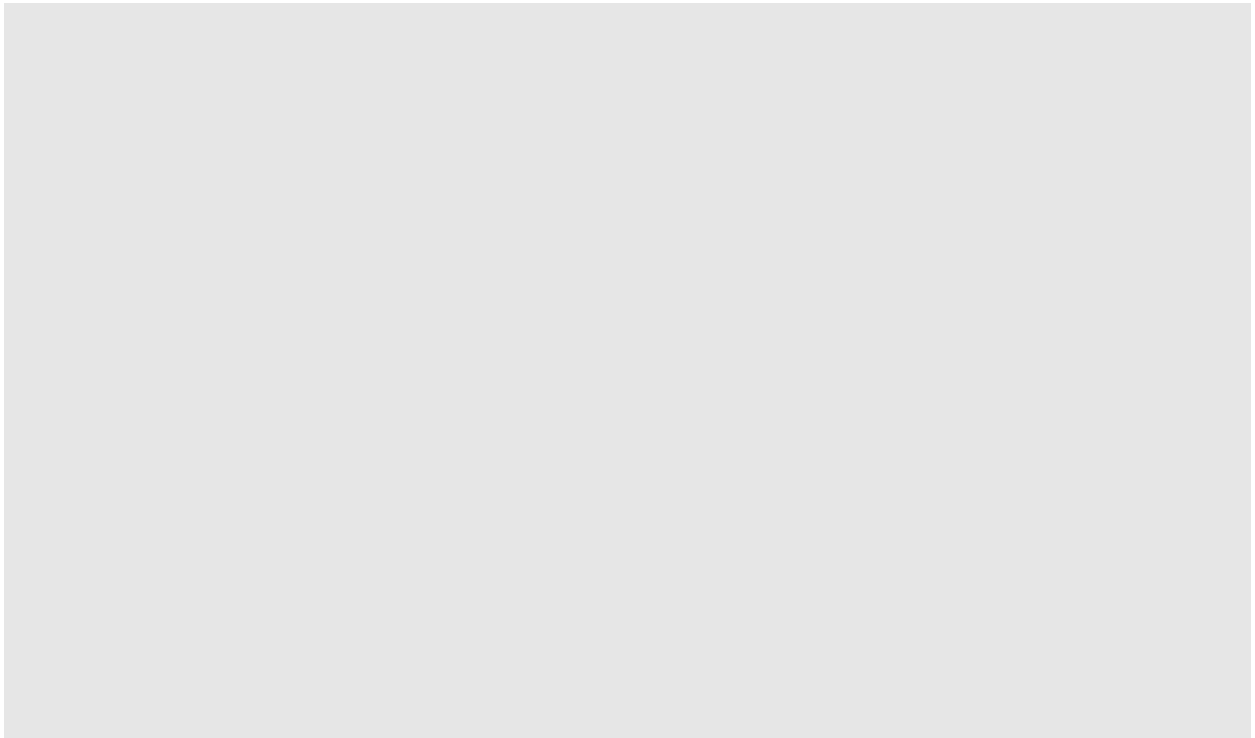
Probability map of distance = 0.5 and sigma = 25



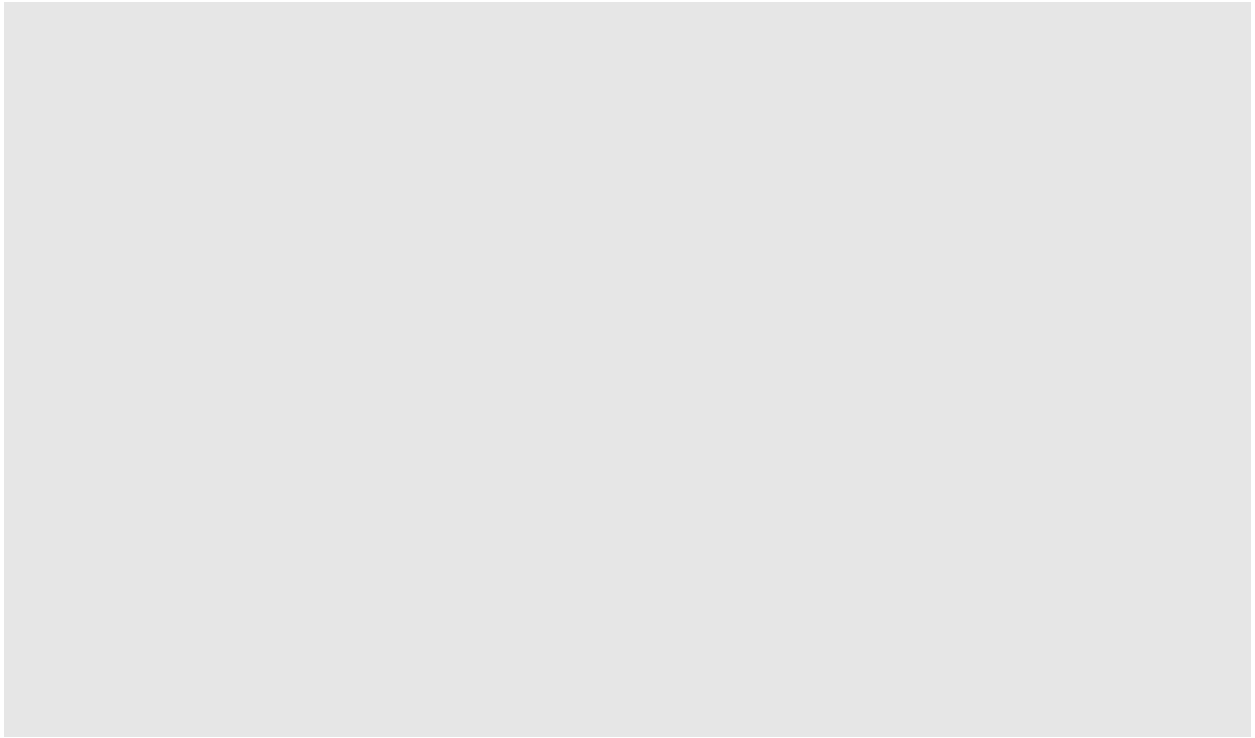
Probability map of distance = 1 and sigma = 25



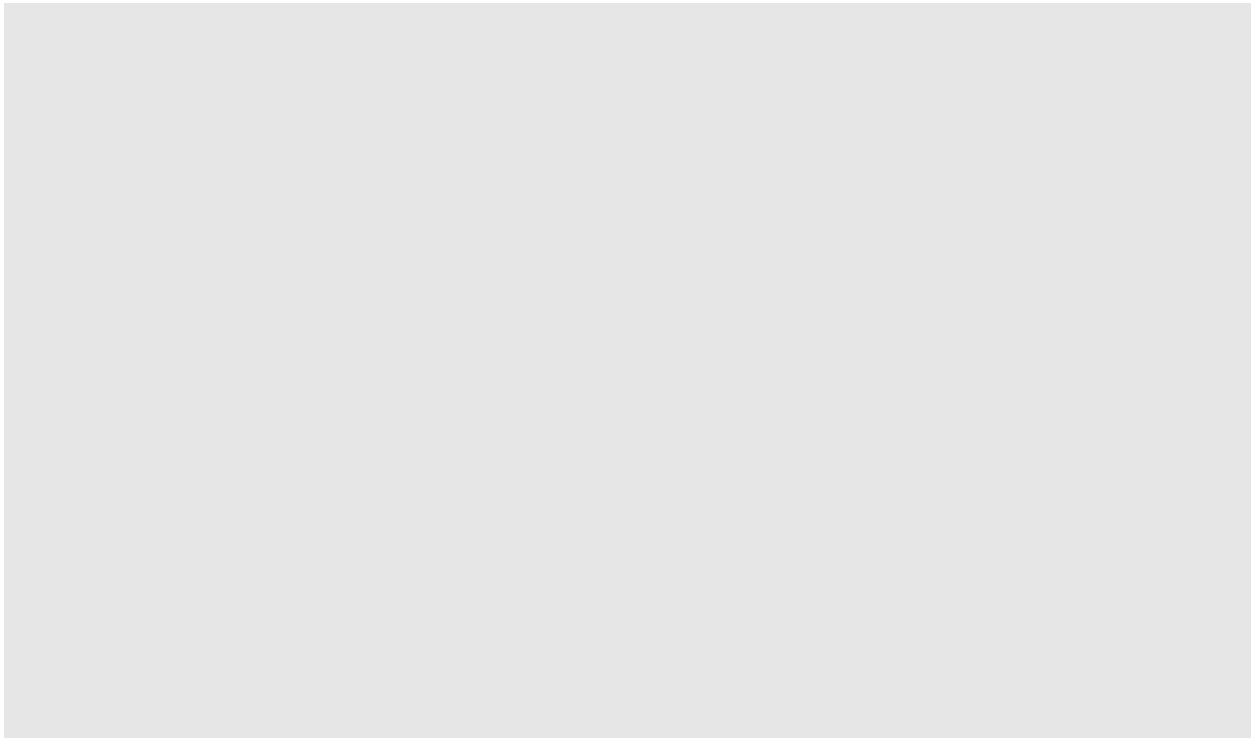
Probability map of distance = 3 and sigma = 25



Probability map of distance = 5 and sigma = 25



Probability map of distance = 10 and sigma = 25



We get that from distance 3m it gave white image regardless of the sigma value.