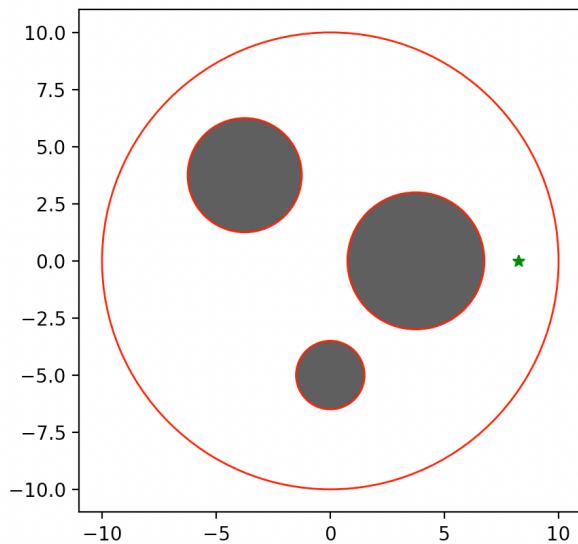
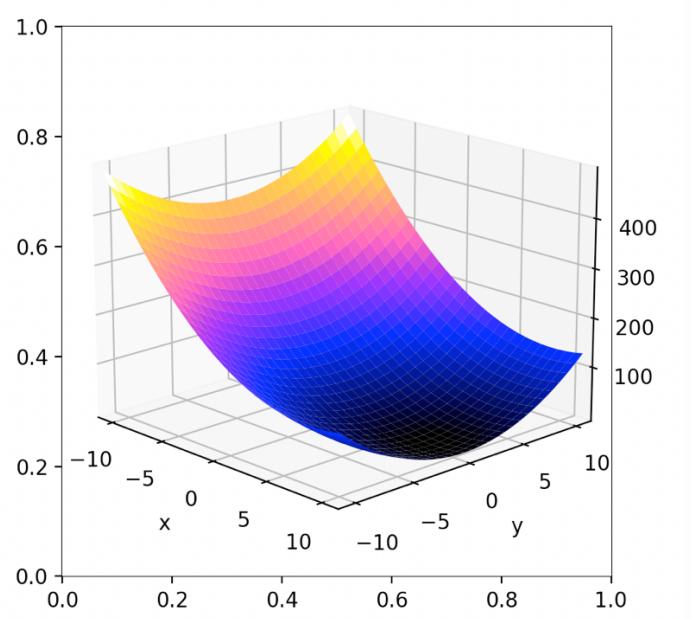


World ->

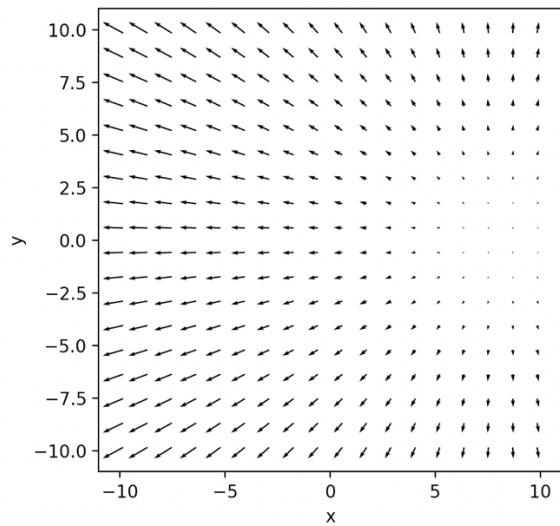


Sphere World

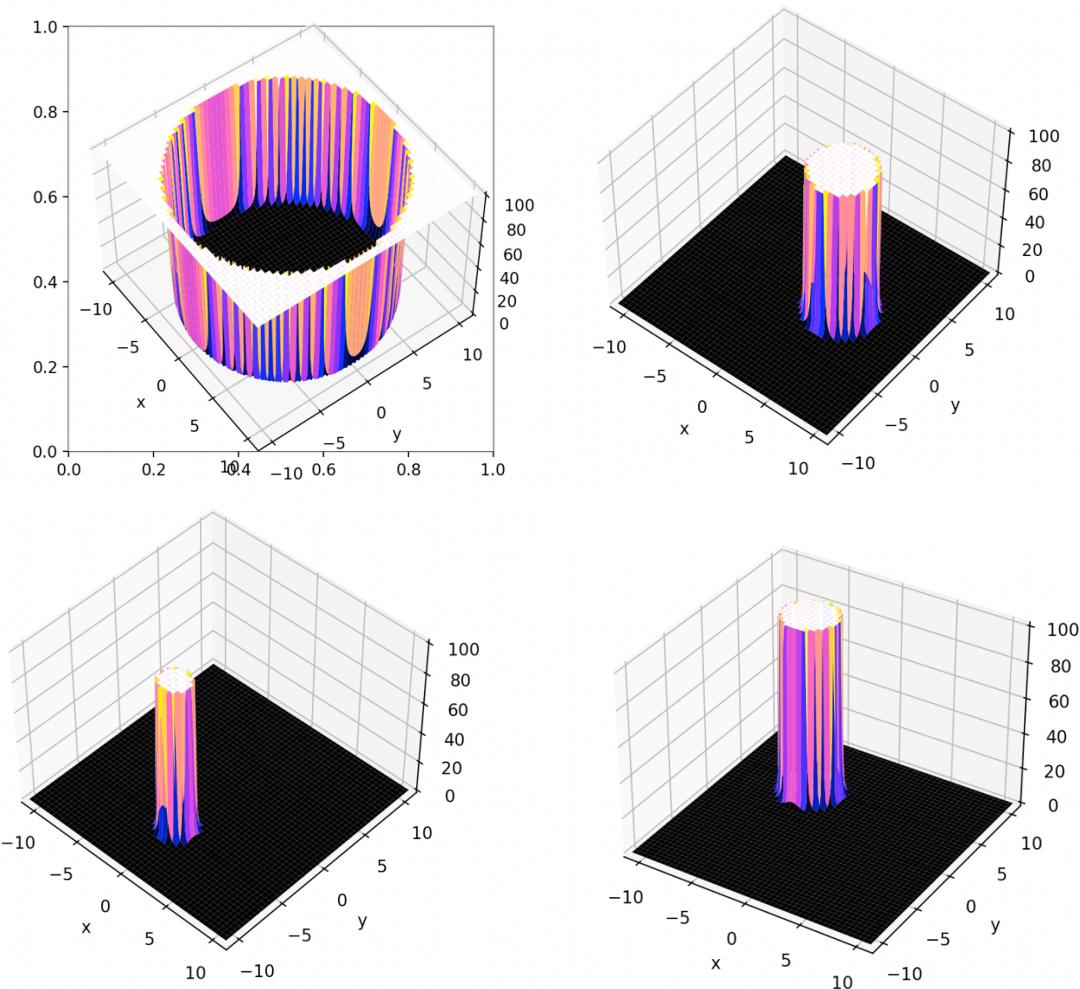
Function Plots ->



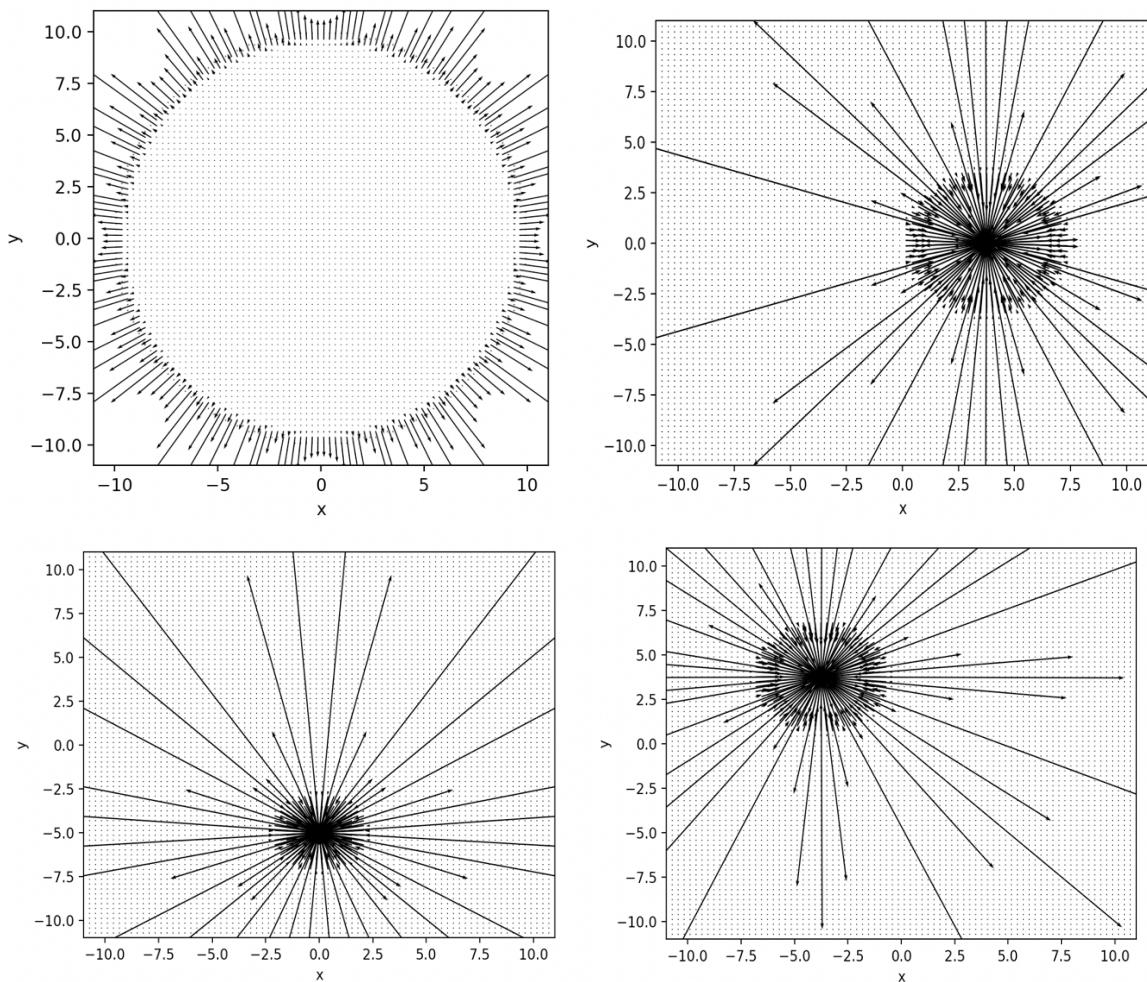
Positive Potential Plot



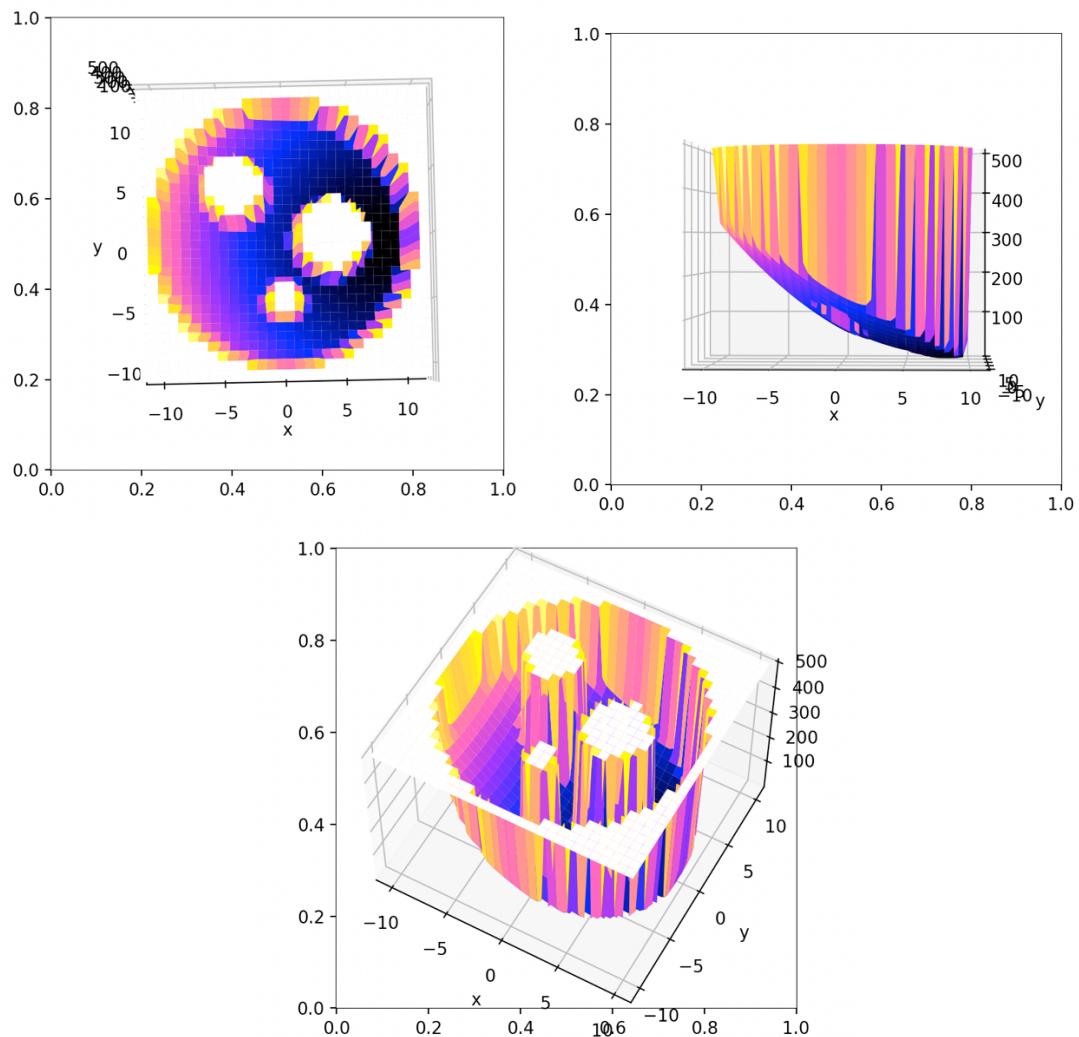
Positive Gradient Field



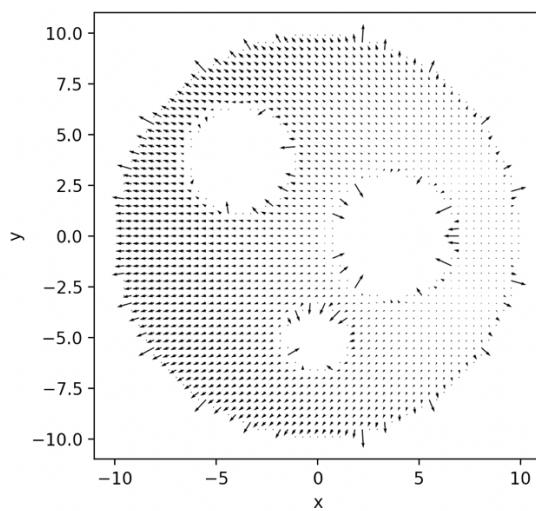
Repulsive Potential Plots



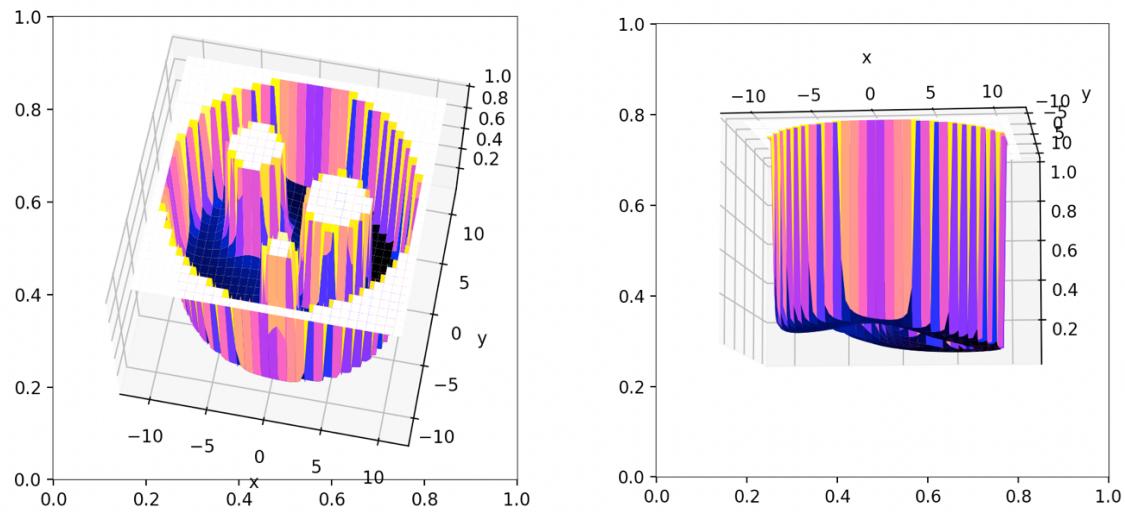
Repulsive Gradient Fields



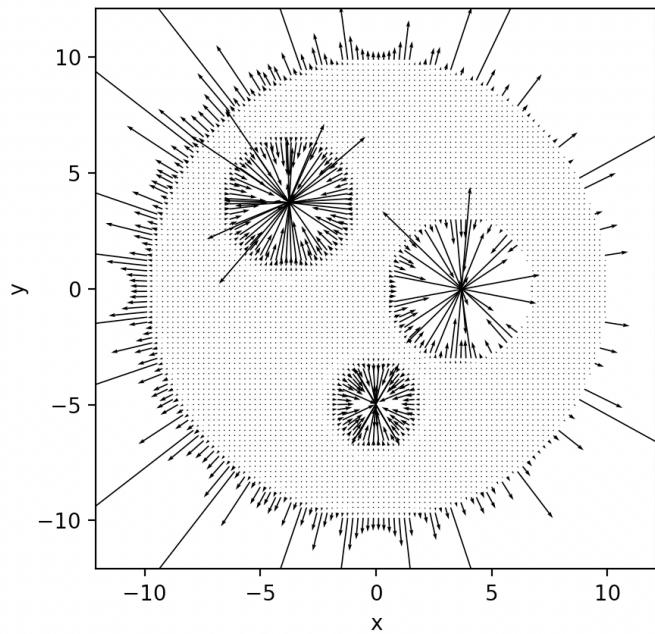
Total Potential Plots: Repulsive Weight = 1



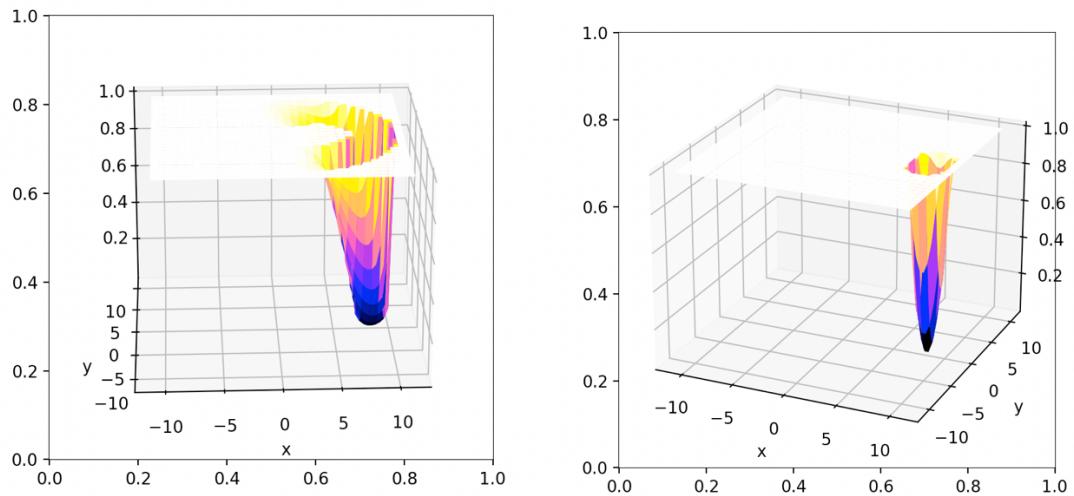
Total Potential Gradient Field: Repulsive Weight = 1



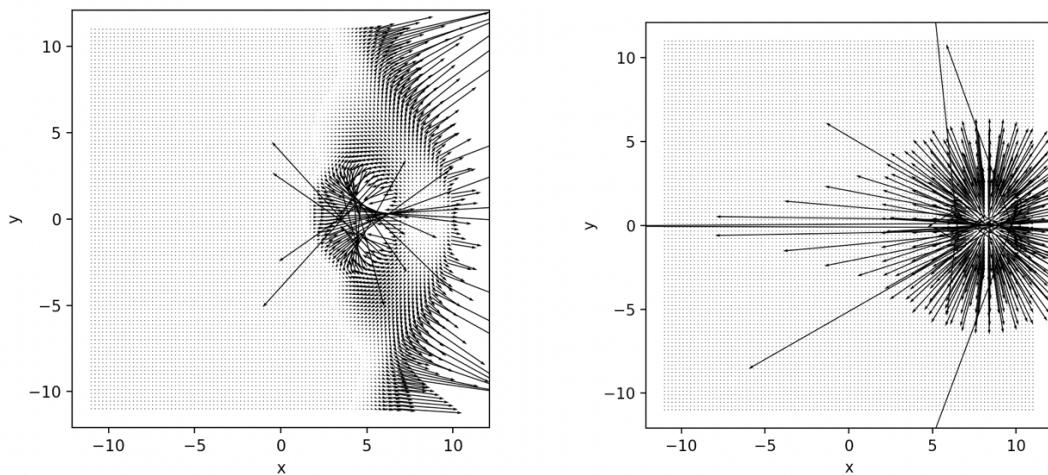
Navigation Function Plots: $k = 2$



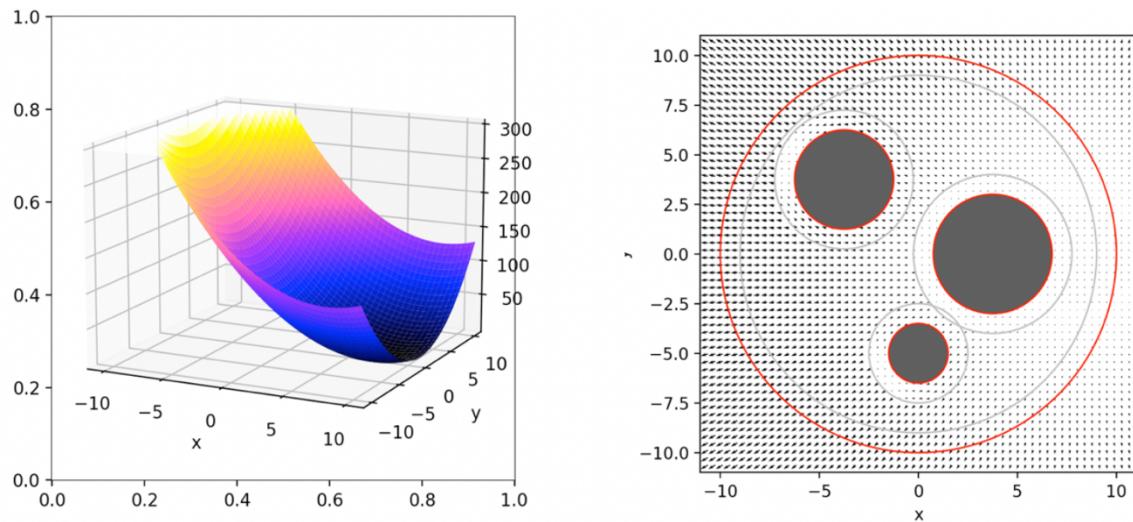
Navigation Gradient Field: $k = 2$



Navigation Function Plots: $k = 4$ and 10

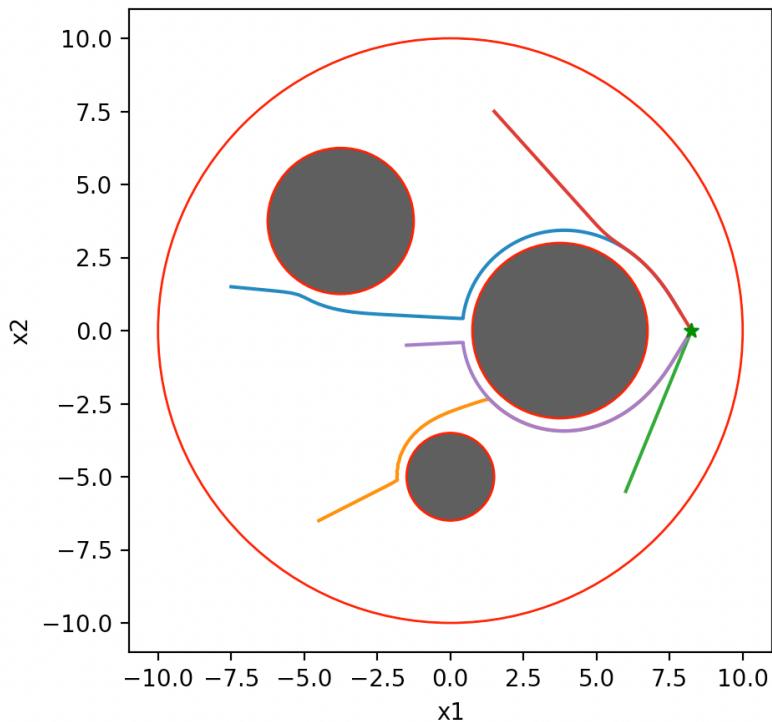


Navigation Gradient Field: $k = 4$ and 10

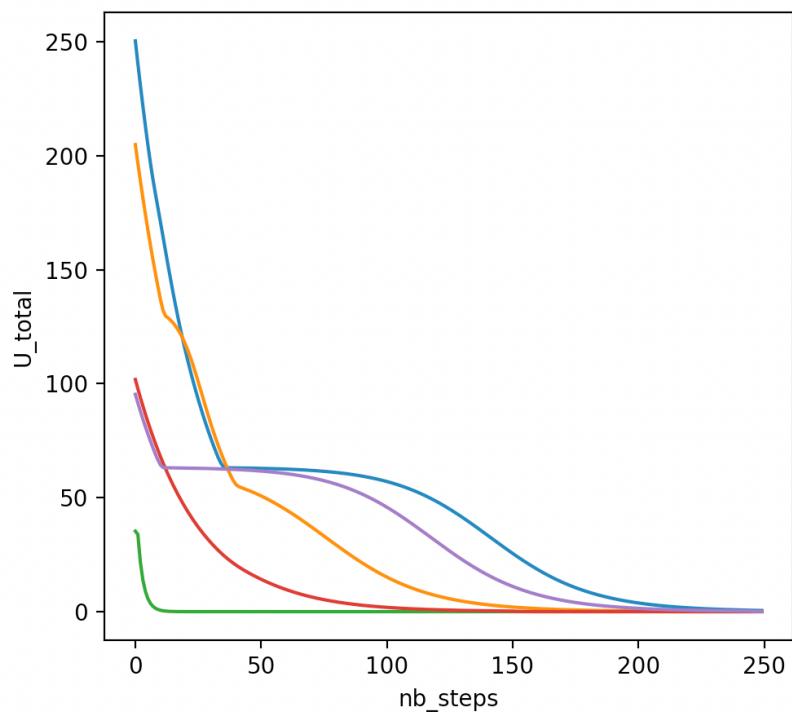


CLF-CBF Function Plots and Gradient Field

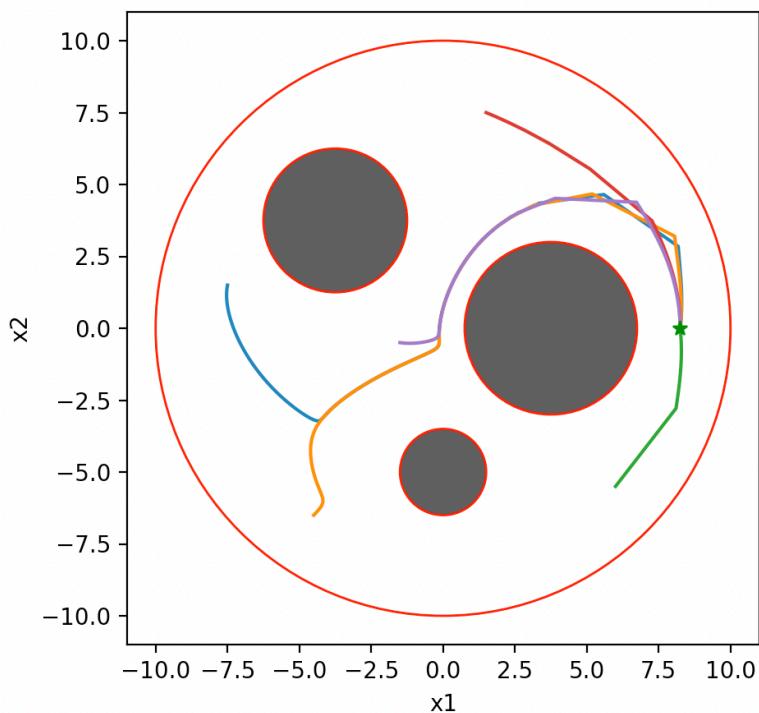
Simulation Results ->



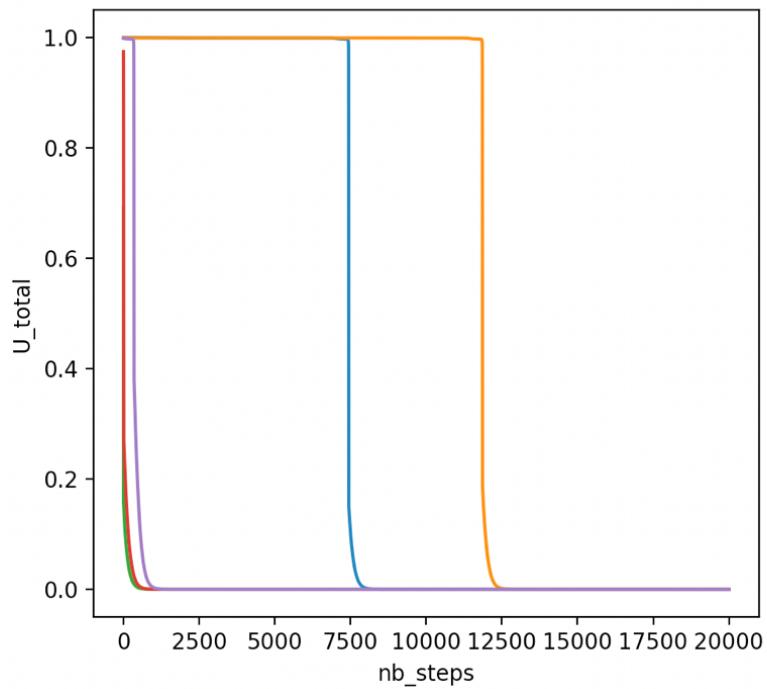
Potential Based Planner Paths: Repulsive Weight = 1, Step Size = .01



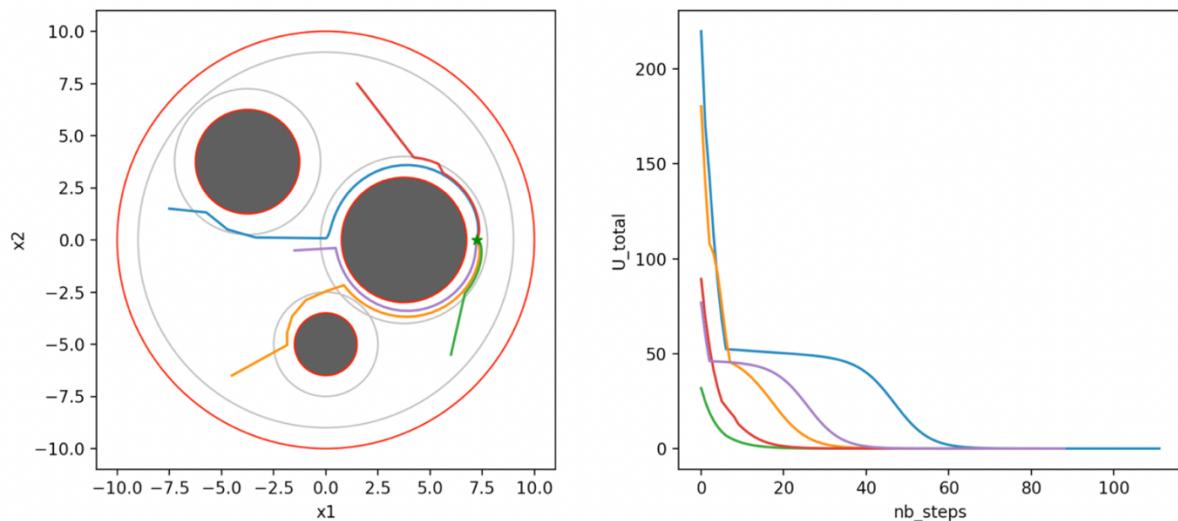
Total Potential Values: Repulsive Weight = 1, Step Size = .01



Navigation Function Based Planner Paths: K = 4, Step Size = 20



Navigation Function Values: K = 4, Step Size = 20



CLF-CBF Planner Paths and Function Values