

2. Kernel Function (커널 함수) 란?

커널 함수란 다음 3가지 조건을 모두 만족하는 함수를 의미한다. (1) 적분값이 1이며, (2) 원점을 중심으로 대칭인 (3) Non-negative인 경우, 이를 커널 함수라고 한다.

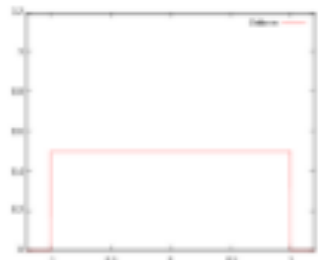
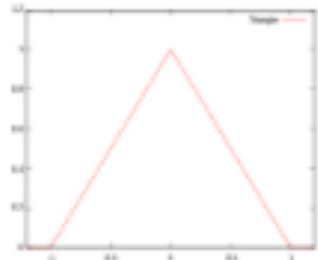
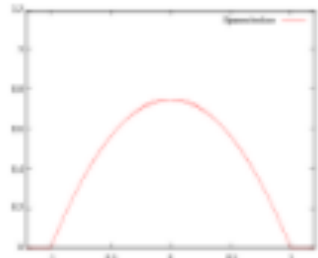
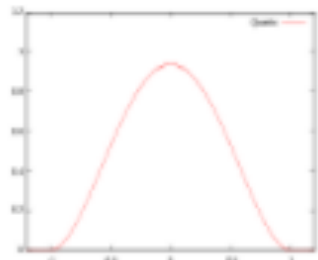
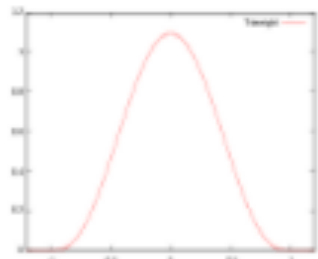
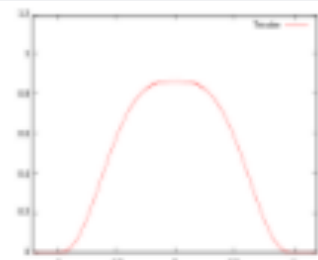
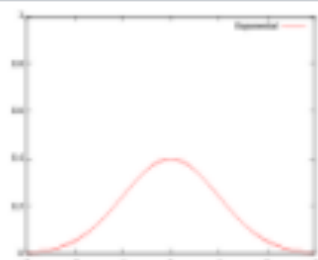


(1) $\int_{-\infty}^{\infty} K(u)du = 1$

(2) $K(-u) = K(u)$ for all values of u .

(3) *Non-negative*

커널 함수의 정의

Kernel Functions, $K(u)$		
Uniform ("rectangular window")	$K(u) = \frac{1}{2}$ Support: $ u \leq 1$	 <p>"Boxcar function"</p>
Triangular	$K(u) = (1 - u)$ Support: $ u \leq 1$	
Epanechnikov (parabolic)	$K(u) = \frac{3}{4}(1 - u^2)$ Support: $ u \leq 1$	
Quartic (biweight)	$K(u) = \frac{15}{16}(1 - u^2)^2$ Support: $ u \leq 1$	
Triweight	$K(u) = \frac{35}{32}(1 - u^2)^3$ Support: $ u \leq 1$	
Tricube	$K(u) = \frac{70}{81}(1 - u ^3)^3$ Support: $ u \leq 1$	
Gaussian	$K(u) = \frac{1}{\sqrt{2\pi}} e^{-\frac{1}{2}u^2}$	
Cosine	$K(u) = \frac{\pi}{4} \cos\left(\frac{\pi}{2}u\right)$ Support: $ u \leq 1$	