

Window Functions for FIR filter design

For,

L : Filter length

$N = L - 1$, Order

$0 \leq n \leq N$

1. Rectangular window: $w(n) = 1$

2. Bartlett (triangular):
$$w(n) = 1 - \frac{2 \left| n - \frac{N}{2} \right|}{N}$$

3. Hamming:
$$w(n) = 0.54 - 0.46 \cos \frac{2\pi n}{N}$$

4. Hanning:
$$w(n) = 0.5 \left(1 - \cos \frac{2\pi n}{N} \right)$$

5. Blackman:
$$w(n) = 0.42 - 0.5 \cos \frac{2\pi n}{N} + 0.08 \cos \frac{4\pi n}{N}$$