

OO10. Musical pitch tracking with a narrowed autocorrelation function.
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An autocorrelation function with narrowed peaks can be obtained by including, in addition to the usual product $f(t)f(t + \tau)$, products of the form $f(t)f(t + 2\tau)$, $f(t)f(t + 3\tau)$, ..., $f(t)f(t + [N - 1]\tau)$ [J. C. Brown and M. S. Puckette, J. Acoust. Soc. Am. **85**, 1595-1601 (1989)]. This narrowing is useful for the identification of the peak position in the pres-

ence of nearby frequency components and in some cases for resolution of these components. Algorithms will be presented for obtaining a narrowing of either the usual positive peaks of the autocorrelation function or those of an inverted autocorrelation function [J. C. Brown and M. S. Puckette, Proc. 1987 Int. Conf. Comput. Music, Urbana, IL, 84-88 (1987)]. This latter function has some advantages for use in pitch track-

ing. These calculations will be applied to a variety of musical examples including the violin, flute, and piano, for the purpose of obtaining the pitch of digitized waveforms. These pitch tracking results will be presented for sampling rates of 10 K and 32 K and relative advantages will be discussed. [Work supported by a Brachman Hoffman Fellowship from Wellesley College.]