1041-68-242 **Hsien-Kuei Hwang*** (hkhwang@stat.sinica.edu.tw), Institute of Statistical Science, Academic Sinica, Taipei, 11529, Taiwan. *A new approach to the variance of shape characteristics of random digital search trees.*

The calculations of the variance of most shape parameters in random digital search trees often lead to long and complicated expressions that are not easily simplified. We present an approach based on the consideration of a new function, which is not only asymptotically of the same order as the variance but also easier to compute. Then we propose a combined use of Laplace and Mellin transforms to derive an asymptotic approximation with simple integral form that can be further simplified and effectively computed numerically. This approach turns out to be very powerful and readily extended to more general digital search trees. (This talk is based on joint work with M. Fuchs and V. Zacharovas.) (Received August 12, 2008)