

ON AVERAGE PROFILE OF THE BINARY BUCKET DIGITAL SEARCH TREES

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Abstract: Drmota and Szpankowski have studied the average profile in digital search trees (DST) [2]. In this paper, we extend the same approach to bucket digital search trees (b -DSTs) where each node can hold up to b keys. The construction rule of b -DSTs is the same as DSTs, except that keys keep staying in a node as long as its capacity remains less than b . Here we apply an alternate but unified and shorter approach to the analysis of the expectation of two random variables (internal and external profiles) in b -DSTs. We show that the asymptotic results are independent of b and are quite equal to the average profile of ordinary digital search trees in spite of the partial differential equations arising here are of the order b .

Key words: Bucket digital search trees, external and internal profiles, average profiles.

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