CSN 221 - Computer Architecture

**Evaluating Caches Through Multiple Cahing Techniques**

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Analysis of data collected to derive final results and conclusions which are -

* The performance figures obtained for a set of benchmarks show that the dual data cache outperforms in many cases a conventional cache. It is even more remarkable the good performance of the selective cache, which consists of an ordinary cache plus a locality prediction table with a very few entries.
* We have also shown that for those cases where software techniques can be applied to improve the locality of a given algorithm (blocking and copying), the performance of the dual datacache is not degraded.For instance, in the case of matrix multiply with blocking and copying, the performance of the dual cache is about the same as that of a conventional cache .
* Then we moved to a newly proposed caching technique which is Dual locality caching we identify a serious weakness in spatial locality exploitation in I/O caching and propose a new and effective memory management scheme, DULO, which can significantly improve I/O performance by exploiting both temporal and spatial localities. Our experiment results show that DULO can effectively reorganize applications’ I/O request streams mixed with random and sequential accesses in order to provide a more disk-friendly request stream with high sequentiality of block accesses .
* We analysed an effective DULO algorithm to carefully trade off random accesses with sequential accesses. The results of performance evaluation on both buffer cache and virtual memory systems show that DULO can significantly improve a system’s I/O performance.

Preparation of gantt chart and LaTeX document was also done by me.

During the course of research I helped **Nishant Jain** in works.