

1. A next line prefetcher would generally work well for an instruction cache since most of the time instructions are run sequentially. However, if it encounters a branch to a previous block of instructions or to a block after the prefetched block of instructions, the prefetch will become useless
2. Data prefetching can be harmful for performance in certain situations, for example, prefetching could evict useful cache blocks (cache blocks within the current working set), causing a miss when there wouldn't have been one without prefetching
3. To address the issue of harmful prefetches, we can try to not evict blocks that are likely in use (e.g. if the PC's address is in the middle of a block, do not replace that block) or are already out of use (e.g. the PC blocks before the currently used block)