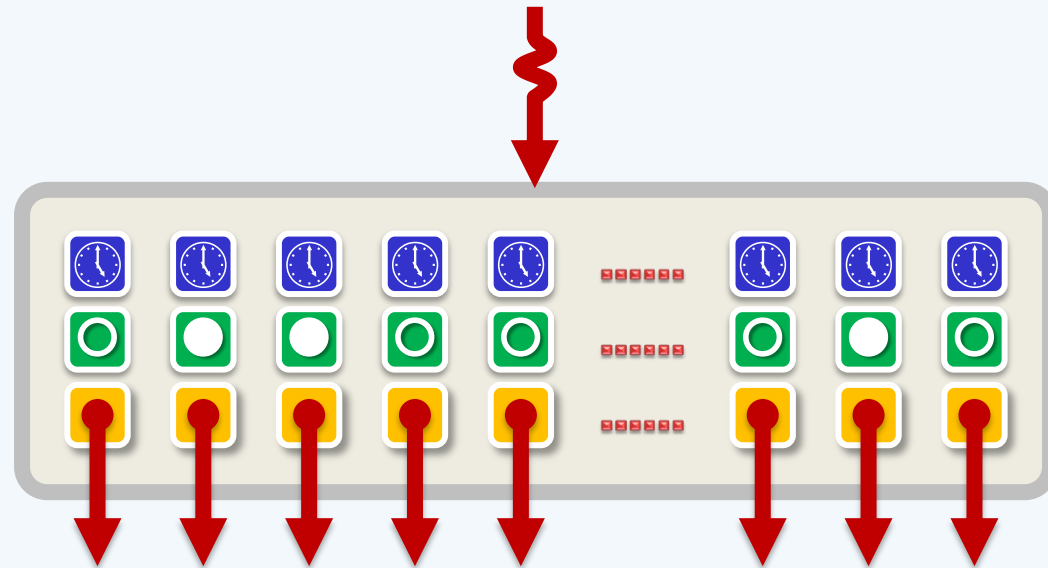# Point Location

Node Copying

- Time Penalty

Junhui DENG

deng@tsinghua.edu.cn

06-E-05

❖ Since a node can contain as many as $\Omega(n)$ left/right pointers,

   deciding which one to follow during a search

      is actually no longer an $\mathcal{O}(1)$-time operation

❖ Specifically, if we use a binary search by time stamp

to decide which pointer to follow,

choosing the correct pointer takes $\boxed{O(\log n)}$ time

❖ Therefore, using node copying, each query/update needs $\boxed{O(\log^2 n)}$ time