6.896 Sublinear Time Algorithms February 6, 2007

Homework 0

Lecturer: Ronitt Rubinfeld *Due Date: February 8, 2007*

Homework guidelines: This homework is optional, and should not be turned in.

1. Show that given any algorithm A that runs in time $T(n)$ on inputs of size n with probability of error $1/3$, one can convert it into a new algorithm B that runs in time $O(T(n) \log 1/\beta)$ with probability of error at most β. (Hint: run A $O(\log 1/\beta)$ times and take the majority answer. Use Chernoff bounds.)