

# Algorithm Analysis Homework 2

Due by 3/27(Fri.) through HISNET

1. For the following functions;

```
alg(n){  
    if (n <= 1) return 1;  
    else return (alg(0.7n) + alg(0.3n) + fun(n));  
}
```

```
fun(n){  
    total = 0;  
    for (i=0; i<n; i++) total = total + i;  
}
```

- (a) Determine the recurrence equation ( $T(n)$ ) for function 'alg( )'.
- (b) Draw recursion tree for above equation.
- (c) Express time complexity of  $T(n)$  in 'Theta' notation.
2. Use the master theorem method to give tight asymptotic bounds for the following recurrences.
- (a)  $T(n) = 9T(n/3) + n^2$
- (b)  $T(n) = 3T(n/9) + n$