Small project proposal

All through this course, you have learned about algorithms for computational biology. Your last problem set will entail a small project. You will have the opportunity to explore the published literature in computational biology, writing a 5 page report on a published paper focussing on some of the following items:

1. Background in the biology problem related to the algorithm
2. Runtime analysis and if relevant space analysis
3. Intuition behind the some of the proofs provided and/or proofs of facts stated without proof
4. Implementation of the algorithm in python and application to a real or synthetic dataset or possible extensions of the algorithm
5. Literature search of other approaches to similar problem

You may choose to make your project more theoretical or more applied.

Please write one or two paragraphs choosing a paper for your project and discussing what you plan to explore. Send these two paragraphs by e-mail to the TA by Wednesday April 27, 2005. Note that the small project will be due on Friday May 6th, 2005.

Here is a list of papers that we find interesting and directly related to the class. If you would strongly prefer to work on a different paper on computational biology, please let us know in the e-mail due by Wednesday April 27th, 2005.

2. S. Altschul, et al. Basic Local Alignment Search Tool. Journal of Mol Biology 1990. (comments: this is the original BLAST paper)
3. J. Buhler. Efficient large-scale sequence comparison by locality-sensitive hashing. Bioinformatics 2001 (comments: this is an extension of the second pset of random projections for rapid database search)
4. Kamvysselis et al, While-genome comparative annotation and regulatory motif discovery in multiple yeast species RECOMB 2003 (comments: a paper by the faculty teaching the class combining several yeast species)


