Position Open: Bioinformatic Support Person for the Kerfeld Research Group at MSU

The Kerfeld Research Group (http://www.kerfeldlab.org/) in the Plant Research Laboratory and the Department of Biochemistry and Molecular Biology at Michigan State University is seeking 1-2 bioinformaticists to work alongside experimental scientists. Our interdisciplinary research group focuses on structure-based characterization and engineering of photoprotection and the carbon concentrating mechanism in cyanobacteria. We are also developing bacterial microcompartment-based systems for metabolic engineering. The Kerfeld group combines methods in bioinformatics, cellular imaging, synthetic and structural biology (protein crystallography and small angle X-ray scattering) for the engineering bacterial metabolism. We will provide the requisite training in the specific biological questions.

Recent publications that included the work of a Bachelor's level bioinformaticist in our group include:

Lassila et al. Assembly of Robust Bacterial Microcompartment Shells using Building Blocks from an Organelle of Unknown Function. Journal of Molecular Biology *in press*.

Cai et al. Evidence for the widespread CRISPR-Cas immunity system in the phylum *Cyanobacteria*. RNA Biology 10: 687-693, 2013.

Zarzycki et al. Cyanobacterial-based Approaches to Improving Plant Photosynthesis. Journal of Experimental Botany 64:787-98, 2013.

Shih et al. Improving the coverage of the cyanobacterial phylum using diversity-driven genome sequencing. Proceedings of the National Academy of Sciences, USA 110:1053-1058, 2013.

Kinney et al. Comparative Analysis of Carboxysome Shell Proteins. Photosynthesis Research 109: 21-32, 2011.

Position Requirements:

- 2+ years education and/or experience in software development (object oriented programming as well as scripting)
- Solid grasp of basic statistics (p-values, probability density functions, etc)
- Solid communications skills -- both written and oral
- Experience analyzing large amounts of data

Keys for success:

- High efficiency programming in Unix and Perl, Python, or Java, as well as a statistical software package such as R
- Familiarity with basic bioinformatics software packages and services. (BLAST, HMMER, NCBI, UniProt)
- Basic knowledge of database management*
- Experience using version tracking tools/open source repositories*
- Experience with distributed computing environments*
- Experience working with experimentalists or a team of diverse backgrounds

Level: Open (current undergraduate, BS or higher degree).

Effort 20-40 hours/week. Undergraduates who meet the criteria but have more limited availability are also encouraged to apply.

To Apply send CV and letter of interest to Cheryl Kerfeld: kerfeldc@msu.edu