

WORK EXPERIENCE

Scientific Programmer - Bioinformatics research tools @ Drexel. (January 2013 - Present)

- PyFeast, a feature selection toolkit wrapper in Python.
- Fizzy, metagenomic feature selection based using Python and PyFeast, and integrated into QIIME,
- Pogo-DB, a fully fledged interactive web database written in PHP for querying gene similarity between species. MySQL used as backend, PHP frontend.
- dna-utils, high-performance DNA parsing and primer strand counting written in C.
- SelectiveWholeGenomeAmplification, automated primer design based on brute force sweeps and parameter filtration of specific DNA primers for use in real world samples. The bulk of the tools are scripted together with Bash, and written in Python and C.
- Quikr, a taxonomic classifier using compressive sensing in C and OpenMP
- Web Queuing system for in-house classification software, written with the web2py Python web framework, for use with quikr.
- General systems administration for our computing nodes. Used LDAP for authentication, Storage using RAID. Used Debian, OpenSuse for development platforms and for the web, a LAMP stack as well as nginx for other applications

Computer Vision Programmer - Automated Fly Video Tracking and Analysis @ Drexel C.S. (May - Dec 2012)

- Developed high throughput tools in C, using ImageMagick, OpenCV and OpenMP for tracking fruit fly learning and memory tracking.
- Benchmarked tools and formalized software review, and improved performance to make product viable for scientists to use.
- Experience with color normalization, blob detection, and motion tracking using OpenCV
- Shell scripting for automated processing and modified tools for parallelization across a cluster.
- Currently in use at The Maranda Lab at Drexel.

Web Developer – The Math Images Project @ Goodwin College / Drexel CS (June 2011 - January 2013)

- Helped develop The Math Images Project wiki which engages students with interactive math webpages.
- Prototyped a replacement for Mediawiki using Drupal 7.
- Developed HTML5/Javascript applets and Java applets
- Developed faculty review system for use at Drexel CS department, written with PHP and MySQL

CV

S. D. Essinger, E. Reichenberger, C. Morrison, C. B. Blackwood, G. L. Rosen
"A Toolkit for ARB to Integrate Custom Databases and Externally built Phylogenies"
PLOS One (Accepted) 2014

G. Ditzler, J. Calvin Morrison, and G. Rosen.
"FizzyQIIME: Feature Selection for Metagenomics"
Genomic Science Annual Contractor-Grantee Meeting 2014

Yemin Lan, J. Calvin Morrison, Ruth Hershberg, and Gail L. Rosen.
"POGO-DB" - a database of pairwise-comparisons of genomes and conserved orthologous genes."
Nucleic Acids Research, 2013. <http://pogo.ece.drexel.edu>

Reza MA, Mhatre SD, Morrison J. Calvin, Utreja S, Saunders AJ, Breen David E., Marendra Dan.
"Automated analysis of courtship suppression learning and memory in Drosophila melanogaster."
Fly 2013; 7:105 - 111;

SKILLS

Platforms – Mac OS X, Unix, GNU/Linux (Red Hat, Suse, Ubuntu, Arch), Windows

Languages – C, Bash, XML, HTML, PHP5, Javascript, Python, Matlab

Software – Linux System Administration, MySQL, Drupal, Mediawiki, Bugzilla, Nagios, LDAP, QIIME

Research Interests - Computer Vision, Bioinformatics, Data Processing, HPC, Realtime Video Tracking