Jacob C. Fuller

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Summary

Python programmer working in UGA Dept. of Genetics lab performing computational analyses of next-gen sequences.

Education

University of Georgia *August 2011 - May 2015*

- B.S. Genetics, Certificate of Computing. GPA: 3.3

Skills

- Java, OOP 1 year
- Linux 3 years
- Shell 1 year
- HTML, CSS, JavaScript < 1 year
- Python 1 year
- Git 1 year
- Cluster computing 1 year
- C & C++ < 1 year

Experience

Research Technician - UGA

White lab, Dept. of Genetics *June 2016 - present*

- Conducting independent computational analyses of next-gen sequence data, using cluster computing and Python scripts (see github)
    - Identify relevant and high quality whole-genome sequences on SRA database
    - Use UGA GACRC high-performance cluster to download and run a series of genomics software in order to process large amounts of sequence data. Run parallel cluster jobs for efficiency
    - Write Python scripts to analyze patterns in sequence depth to elucidate Y chromosome structural variation
    - Wrote algorithm that successfully identifies the boundaries of pseudoautosomal regions in Stickleback fish
    - Write Python scripts to analyze SNP (single-nucleotide polymorphism) density and diversity
    - Ultimate goal of this project is to understand Stickleback Y chromosome diversity at the population level
    - Weekly meetings with PI to discuss progress and scientific literature
- Molecular genetics experiments
    - Use bacterial artificial chromosomes for DNA transformation, cloning, extraction, and purification for genome assembly
        - troubleshooted protocol to increase DNA yield
    - PCR & PCR cloning using *E. coli*

Steet lab, Complex Carbohydrate Research Center *June 2015 - June 2016*

- Bred and maintained transgenic strains of zebrafish
    - Maintained transgenic strain purity by genotyping via fluorescent microscope. Each transgenic line had a fluorescent protein marker
- Performed zebrafish husbandry and facility maintenance. I maintained strict organization and scheduling in order to keep the fish healthy and the Aquaneering fish systems running smoothly

Undergraduate Researcher *January - May 2015*

Kissinger Lab, Center for Tropical and Emerging Global Diseases

- Performed computational analyses of NUMTs (nuclear mitochondrial transfer sequences) in order to identify strain specific sequences in *Toxoplasma gondii*
- Wrote Java program to parse and filter .txt files of NUMTs and converted this data to a more human-readable excel sheet format
- Participated in weekly lab meetings to learn from the graduate students' projects and presentations

Volunteering

MEDLIFE *August 2011 - May 2014*

Mobile Clinic trip to Lima, Peru *December 2011*

- Spent a week setting up medical tents with a group of volunteers and local Peruvian doctors to provide healthcare to people in the pueblo jóvenes surrounding Lima, serving upwards of 250 individuals a day
- Worked alongside locals in community development projects. Specifically, we constructed a large staircase in the steep, arid mountainsides where the locals lived

Executive Board Member: Spring Benefit Concert Chair *May 2013 - May 2014*

- Organized and ran the annual battle of the bands benefit concert. Raised over $1000 and beat the previous record
- Assisted with general MEDLIFE executive board tasks

Grady Memorial Hospital Observership *June 2012 - August 2012*

- Shadowed attending physician and residents during the ER night shifts 11PM -4AM
- Saw a wide variety of emergency medical issue and assisted physicians as needed