

Joseph Burke

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Education

Michigan State University, Lyman Briggs College & Honors College

May 2022

Bachelor of Science, Genomics and Molecular Genetics

Minor in Computer Science

Work Experience

Plant Genomics (Buell) Lab, East Lansing, MI

September 2019 – Present

Undergraduate Research Assistant

- Analyzed high throughput NGS sequencing data through tools such as SAMTools, Hisat2, CuffLinks, and DESeq 2 in Linux/Unix environments
- Created a gene-based MongoDB database for storing sequence and analysis data for *Salvia hispanica*
- Created a RESTful API for querying a MongoDB genomic database using Python and FastAPI
- Created a dynamically rendered database search page that consumes data from an API in JSON format using Vue.js
- Maintained multiple legacy websites for federally funded research projects
- Created static websites using Github, Jekyll, and Ruby served with Github Pages
- Edited content for The Plant Resilience Institute at Michigan State University's website using the MURA content management system

Lyman Briggs College, East Lansing, MI

September 2020 - Present

Undergraduate Teaching Assistant

- Served as a UTA for Lyman Briggs Biology 1: Organismal Biology
- Created and graded content for the lab portion of the class
- Mentored students through the process of creating and presenting their own research projects

Sparty's, East Lansing, MI

September 2018 – November 2019

Student Supervisor

- Communicated with upper level management on team performance, staffing needs, and operational needs of the unit
- Onboarded and trained student employees in multiple different positions
- Encouraged and maintained a positive attitude from a team of 5-10 student employees per shift

Vegetable Entomology (Szendrei) Lab, East Lansing, MI

May 2019 – August 2019

Undergraduate Research Assistant

- Collected leafhopper from various carrot and celery farms across Michigan via sweep net for pathogen detection and diagnostics
- Performed DNA extractions on leafhoppers
- Managed greenhouse responsibilities such as watering, planting, and leafhopper colony maintenance
- Performed data entry in lab notebooks and in google sheets

Dr. Kay Holekamp Research Lab, East Lansing, MI

September 2018 – May 2019

Undergraduate Research Assistant

- Collaborated with a team to collect and compile sets of data into Excel/Access and analyzed the data with R to determine the function of the giggle vocalization in hyenas
- Created and presented a professional poster at the University Undergraduate Research and Arts Forum displaying the results of the overall work

Publications

Gina M Pham, John P Hamilton, Joshua C Wood, **Joseph T Burke**, Hainan Zhao, Brieanne Vaillancourt, Shujun Ou, Jiming Jiang, C Robin Buell. (2020). Construction of a chromosome-scale long-read reference genome assembly for potato, *GigaScience*.