

Julian A. Liber

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EDUCATION

Michigan State University, East Lansing, MI Aug 2018 - Anticipated May 2021

Masters of Science in Plant Biology – Current GPA: 4.00

- Coursework: Advanced Mycology, Evolutionary Biology, Special Topics in Mycology, Eukaryotic Cell Biology, Foundations of Plant Biology, Statistical Methods in Ecology and Evolution 1 & 2, Plant Genomics, Teaching College Science, Population & Community Ecology, Integrative Microbial Biology

Michigan State University, East Lansing, MI Aug 2016 - May 2019

Bachelors of Science in Plant Biology - GPA: 3.99

- Minor: Computational Mathematics, Science, and Engineering
- Biology Coursework: Biology of Plants, Fundamental Genetics, Organic Chemistry, Ecology, Evolution, Introduction to Forestry, Plant Physiology, Plant Systematics, Algal Biology, Biochemistry
- Computational and Quantitative Coursework: Computational Biology, Computational Modeling Tools and Techniques, Introduction to Programming II, Bioinformatics
- Honors College

The Ohio State University Stone Laboratory, Gibraltar Island, OH Summer 2017

- Field courses in Evolution and Ecology

RESEARCH EXPERIENCE

Graduate Research Assistant, MSU, East Lansing, MI Summer 2019 - Present

- Bonito Lab – Systematics of Mortierellaceae, fungal interactions with bacteria, algae, plants, nematodes, and plant viruses, computer vision applications to fungi.
- Mentoring of undergraduate and high school students

Undergraduate Research Assistant, MSU, East Lansing, MI Fall 2018 - Spring 2019

- Bonito Lab – Independent research project studying the interaction of bacterial and fungal endophytes in grasses.
- Responsibilities – Experimental design, data collection, presentation of results, lab maintenance duties, regular meetings with research group and professor.

iGEM Competition Team Leader, MSU, East Lansing, MI, Spring 2018 - Fall 2018

- Team project to transform a native bacterial endophyte of grasses to promote drought stress tolerance in cereal crops
- Responsibilities – Organizing team meetings, project and experimental design, technical problem solving, community outreach, inter-lab collaboration, research presentation

Professorial Assistantship, MSU, East Lansing, MI Fall 2016 - Spring 2018

- Bonito Lab (Spring 2017 – Spring 2018) – Study of endosymbiotic bacteria interactions in fungi; culturing and sequencing novel fungi strains, microscopy and image analysis
- Sticklen Lab (Fall 2016) – Genetic transformation techniques of wheat and cotton
- Responsibilities – Frequent meetings with PI and lab members, writing research reports, training students, working independently and in groups, scheduling

TEACHING EXPERIENCE

Teaching Assistant, MSU, East Lansing, MI

Fall 2019

- Center for Integrative Studies in General Science
- Course: ISB 208L – Applications in Biological Science Laboratory
- Responsibilities – Course development and planning, lectures, grading, working with course coordinator and TAs, help room

Undergraduate Learning Assistant, MSU, East Lansing, MI

Spring 2018 – Spring 2019

- Department of Computational Mathematics, Science, and Engineering
- Course: CMSE 202 – Computational Modeling Tools and Technology
- Responsibilities – Group facilitation in class, weekly meetings with instructors, aid students in help room, software troubleshooting, discussion of education pedagogy

AWARDS

- Summa Cum Laude, MSU Spring 2019
- Department of Plant Biology Outstanding Undergraduate Award Spring 2019
- Department of Computational Mathematics, Science, and Engineering Outstanding Learning Assistant Spring 2019
- University Undergraduate Research and Arts Forum 1st Place Poster Spring 2018
- Dean's List Fall 2016 - Spring 2019
- Scholarships - Alumni Distinguish Scholarship Finalist, National Merit Finalist, Norman A. Good Scholarship Award, College of Natural Science Research Scholarship

SYNERGISTIC ACTIVITIES/PROFESSIONAL IMPACT

MSU Plant Biology Graduate Student Organization Outreach Committee

2019-2021

Organize and participate in events in the Lansing, MI area to promote interest in science and science literacy.

MSU Plant Biology Club President

2018-2019

Club activities organization, recruitment, plant collection maintenance, outreach events.

MSU iGEM Team

2018

Integrated human practices including expert consultations, community surveys and public forums, and educational events at Impression 5 Science Center and Lansing Public Library.

MSU Science Festival Presenter

2017-2020

Interactive presentations discussing photosynthesis and plant adaptations.

East Lansing Science Nights Presenter

2016-2019

Hands-on activities exploring plant diversity, microbiomes, evolution, and plant anatomy.

PUBLICATIONS/PRESENTATIONS/FEATURES

- **Liber JA**, Benucci GMN, Bonito G. (2020) CONSTAXv2: a software for accurate taxonomic classification of environmental DNA markers. *Manuscript in preparation*.
<https://github.com/liberjul/CONSTAXv2>
- **Liber JA**, Golematis N, Cole E, Malmstrom C, Bonito G. (2020) Four-way interactions in the plant holobiont: How does plant viral disease alter fungal and bacterial community assembly? Mycological Society of America. Virtual, July. 22, 2020. Poster presentation.
- **Liber JA**, Minier DH, Stouffer-Hopkins A, Van Wyk J, Longley R, Bonito G. (2020) Leaf litter fungal communities reflect pre-senescent leaf communities in a temperate forest ecosystem. *Revision prior to resubmission*.

- **Liber JA**, Bryson A, Bonito G, Du Z. (2020) Harvesting microalgae for food and energy products. *Small Methods*. 2020(2000349): 1-16.
- Vande Pol N, **Liber JA**, Matlock J, Bonito G. (2020) *Mortierella elongata* stimulates aerial growth, seed production, and responses to auxin, ethylene, and reactive oxygen species in *Arabidopsis thaliana*. *Molecular Plant Microbe Interactions*. *Submitted*.
- Vande Pol N, **Liber JA**, Desirò A, Na H, Kennedy M, Barry K, Grigoriev IV, Miller AN, O'Donnell K, Stajich JE, Bonito G. (2020) Resolving the Mortierellaceae phylogeny through synthesis of multi-gene phylogenetics and phylogenomics. *Fungal Diversity*. 2020.
- **Liber JA**, Bonito G. (2019) Do fungal endophytes facilitate colonization of bacterial endophytes in *Brachypodium distachyon*? Mycological Society of America. University of Minnesota, Minneapolis, Minnesota, Aug. 13, 2019. Poster presentation.
- **Liber JA**. (2019) Co-inoculation effects of bacterial and fungal endophytes in *Brachypodium distachyon*. University Undergraduate Research and Arts Forum. Michigan State University, East Lansing, Michigan, Apr. 5, 2019. Oral presentation.
- **Liber JA**, Brauer-Delaney B. (2018) Julian Liber: Undergrad research opportunities. *MSU Today Student Views*. Dec. 5, 2018.
- **Liber JA**, Houwat I. (2018) MSU team wins bronze at 2018 synthetic biology competition. *Michigan State University, Molecular Plant Sciences News*. Nov. 27, 2018.
- **Liber JA**, Lee J, Uhelski E, Del Rose A, Schultz J, Viola S, Gate C, and Caldwell S. (2018) Transformation of endophyte *Enterobacter ludwigii* with ACC deaminase related to ethylene stress response. iGEM Giant Jamboree. Hynes Convention Center, Boston, Massachusetts, Oct. 25, 2018. Poster and oral presentation.
- **Liber JA**, Gall E, Vande Pol N, Silvia D, and Bonito G. (2018) Use of hyphal image analysis and machine learning to classify Mucoromycota soil fungal isolates. *International Mycological Congress*. San Juan Convention Center, San Juan, Puerto Rico, July 20, 2018. Poster presentation.
- Aime MC, Urbina H, **Liber JA**, Bonito G, and Oono R. (2018). Two new endophytic Atractiellomycetes, *Atractidochium hillariae* and *Proceropycnis hameedii*. *Mycologia*. 110(1): 136-146
- **Liber JA**, Gall E, Vande Pol N, Silvia D, and Bonito G. (2018) Use of hyphal image analysis and machine learning to classify Mucoromycota soil fungal isolates. *University Undergraduate Research and Arts Forum*. Michigan State University, East Lansing, Michigan Apr. 13, 2018. Poster presentation.
- Desirò A, Hao Z, **Liber JA**, Benucci GM, Lowry D, Roberson R, Bonito G. (2018) Mycoplasma-related endobacteria within Mortierellomycotina fungi: diversity, distribution and functional insights into their lifestyle. *The ISME journal*. 12(7): 1743-1757.
- Hussien A, Olson E, Brisco E, West H, Javaid T, **Liber JA**, and Sticklen M. (2016) Overactivation of two wheat native genes in wheat genome confers resistance to FHB pathogen inoculations. *Scab Symposium, Genes Discovery and Engineering Chapter*. Hyatt Regency at the Arch. St. Louis, Missouri, Dec. 4-6, 2016. Poster presentation.