

# Schuyler D. Smith

Ph.D. Student in Bioinformatics and Computational Biology  
Department of Agriculture and Biosystems Engineering  
College of Engineering  
Iowa State University of Science and Technology

 +1 (413) 212-9110  
 [schuyler.d.smith@gmail.com](mailto:schuyler.d.smith@gmail.com)  
 [Google Scholar](#)  
 [github.com/schuyler-smith](https://github.com/schuyler-smith)  
 4332 Elings Hall  
605 Bissell Rd  
Ames, IA 50011-10981

## Education

- Ph.D. Iowa State University of Science and Technology, Ames, IA** 2017 - pres.  
*Bioinformatics and Computational Biology*  
Research focus: metagenomic community analysis, microbial ecology.  
Advisor: Dr. Adina Howe
- 
- M.S. Texas A&M University, College Station, TX** 2013 - 2015  
*Quantitative Genetics and Plant Breeding*  
Thesis: *Molecular Characterization of the Texas Maize Breeding Program.*  
Research focus: quantitative genetics, marker analysis, NIR phenotyping.  
Advisor: Dr. Seth Murray
- 
- B.S. Iowa State University of Science and Technology, Ames, IA** 2008 - 2012  
*Genetics*

## Experience

- Iowa State University of Science and Technology** January, 2017 - pres.  
Genomics and Environmental Research in Microbial Systems Lab, Ames, Iowa  
*Graduate Research Assistant - Ph.D.*  
Identifying microbial interactions in complex systems.
- University of Wisconsin-Madison** June, 2015 - August, 2016  
Potato Breeding and Genetics Laboratory, Madison, Wisconsin  
*Graduate Research Assistant - Ph.D.*  
Development of workflows and pipelines to automate and scale  
genotyping-by-sequencing and genomic prediction of quantitative traits.
- United States Department of Agriculture - ARS** June, 2014 - December, 2014  
Arid-Land Agricultural Research Center. Maricopa, Arizona  
*Biological Science Technician (Internship)*  
Developed high-throughput phenotyping platforms for crop traits such as canopy  
cover, plant height, and seed counting.
- Texas A&M University** January, 2013 - May, 2015  
Maize Breeding and Genetics Program, College Station, Texas  
*Graduate Research Assistant - M.S.*  
Developed a molecular characterization of the Texas maize germplasm and  
oleic-acid screening using near-infrared spectroscopy.

<b>Monsanto Company</b>	May, 2012 - November, 2012
Huxley Research Station. Huxley, Iowa	
<i>Maize Plant Breeding Intern</i>	
Conducted research project on optimizing a high-throughput phenotyping platform looking at seed characteristics. Led crews in pollinating nurseries, and harvest.	
<b>DuPont Pioneer</b>	May, 2011 - December, 2011
Willmar Research Station. Willmar, Minnesota	
<i>Maize Product Trait Development Intern - 6 month</i>	
Conducted a QTL study for important problematic proprietary trait. Led crews for data collection in yield trials, pollination in nurseries, and harvesting.	
<b>United States Department of Agriculture - ARS</b>	January, 2010 - May, 2011
Soybean Genomics Laboratory - Graham Lab. Ames, Iowa	
<i>Student Undergraduate Research Assistant</i>	
Assisted post-doctorate researcher via PCRs, DNA extractions and preparations, gel-imaging, among other laboratory procedures.	

## Publications

- J Choi, EL Rieke, TB Moorman, ML Soupir, HK Allen, **SD Smith**, A Howe. *Practical implications of erythromycin resistance gene diversity on surveillance and monitoring of resistance*. January, 2018. FEMS microbiology ecology. [academic.oup.com/femsec/94](http://academic.oup.com/femsec/94)
- Smith, Schuyler D.**, Heffner, Elliot, Murray, Seth C. *Molecular analysis of genetic diversity in a Texas maize breeding program*. 2015. Maydica. 60. [cabdirect.org/abstract/201](http://cabdirect.org/abstract/201)

## Posters

- Smith, S.D.**, Villanueva, P.E., Fukami, T., Howe, A. *Co-Occurrence Networks Reveal Key OTUs in Flower Nectar Microbiomes Across Dispersal Treatments*. Presented at the 17th ISME. 2018, August 12-17. Leipzig, Germany & the NSF Research Traineeship (NRT) Annual Meeting. 2018, September 27-28. Arlington, Virginia.
- Smith, S.D.**, Howe, A. *Examining Antibiotic Resistance Gene (ARG) horizontal transfer and introduction through farmland soil microbiomes as a result of modern farming practices*. Presented at the 3rd Annual Front Rang Computational & Systems Biology Symposium: Microbiome. 2017, June 12-13. Fort Collins, Colorado.
- Smith, S.D.**, Endelman, J.B. *Genotyping by Sequencing for Autotetraploid Species*. Presented at the 5th International Conference on Quantitative Genetics. 2016, June 12-17. Madison, Wisconsin. & the 11th Annual National Association of Plant Breeders Meeting. 2016, August 15-18. Raleigh, North Carolina.

## Awards, Fellowships, Honors, & Recognitions

- |  |              |
|--|--------------|
| Iowa State University of Science and Technology                  |              |
| • Selected as representative for the 2018 NSF NRT Annual Meeting | 2018         |
| • NSF-NRT Predictive Plant Phenomics Fellow                      | 2017 - 2018  |
| • College of Engineering Interdepartmental Research Fellow       | 2017 - pres. |
| • Academic Recognition Award                                     | 2008 - 2012  |
| Texas A&M University   |              |
| • Willie May Harris Fellow                                       | 2013 - 2014  |

## Applicable Skills

- R
- C++
- Python
- Shell (BASH)
- html
- L<sup>A</sup>T<sub>E</sub>X
- Markdown
- RMarkdown
- Git version control

## Graduate Coursework Completed

M.S. Plant Breeding and Quantitative Genetics:

- Quantitative Genetics
- Statistics in Research I
- Statistics in Research II
- Plant Breeding I
- Plant Breeding II
- Experimental Design
- Molecular and Quantitative Genetics in Plant Breeding
- Host-Plant Resistance

Ph.D. Bioinformatics and Computational Biology:

- Bioinformatic Algorithms
- Statistical Bioinformatics
- Bioinformatic Systems
- Genomic Sciences
- Linear Mixed Models
- Fundamentals of Predictive Plant Phenomics
- Plant Genetics
- Biometric Procedures in Plant Breeding
- Advanced Plant Breeding
- Selection Theory
- Tools for Reproducible Research