10 Discovery Drive
Farmington, CT 06032
(860) 837-2054
shane.sanders@jax.org

William S. Sanders

Employment

Manager - Research Cyberinfrastructure	Information Technology Department The Jackson Laboratory Farmington, CT	Jan-2018 to Present
Systems Analyst - High Performance Computing	Information Technology Department The Jackson Laboratory Farmington, CT	Feb-2016 to Jan-2018
Section Editor (Bioinformatics)	Genomics, Proteomics, and Bioinformatics Beijing Institute of Genomics Chinese Academy of Sciences Beijing, China	Apr-2014 to Jun-2015
Postdoctoral Associate - Peterson Laboratory	Institute for Genomics, Biocomputing, and Biotechnology Mississippi State University Starkville, MS	Oct-2011 to Feb-2016
Programmer / Analyst	Institute for Genomics, Biocomputing, and Biotechnology Mississippi State University Starkville, MS	May-2011 to Oct-2011
Graduate Research Assistant	Department of Computer Science & Engineering Mississippi State University Starkville, MS	Jan-2007 to May-2011
Graduate Research Assistant	Department of Biochemistry & Molecular Biology Mississippi State University Starkville, MS	Jan-2004 to Dec-2006
Teaching Assistant	Department of Biochemistry & Molecular Biology Mississippi State University Starkville, MS	Jun-2002 to Feb-2003
Computer & Network Technician	Computers Plus Oxford, MS	Jul-1998 to Jun-1999

Education

Ph.D.	Computer Science *High Performance Computing* Advisor: Dr. Ioana Banicescu	Mississippi State University	In Progress
Ph.D.	Molecular Biology *Computational Biology & Machine Learning* Advisor: Dr. Susan Bridges	Mississippi State University	2011
B.S.	Computer Science	Mississippi State University	2003
B.S.	Biochemistry	Mississippi State University	2003

Publications

A genomic resource for the sedentary semi-endoparasitic reniform nematode, *Rotylenchulus reniformis* Linford & Oliveira	**Journal of Nematology**	*In press*
Five life stage specific transcriptome assemblies for *Rotylenchulus reniformis*	**Journal of Nematology**	*In press*
Insights into the evolution of the New World diploid cottons (*Gossypium*, subgenus *Houzingenia*) based on genome sequencing	**Genome Biology and Evolution**	2018
Comparative genomics of an unusual biogeographic disjunction in the cotton tribe (Gossypieae) yields insights into genome downsizing	**Genome Biology and Evolution**	2017
Independent Domestication of Two Old World Cotton Species	**Genome Biology and Evolution**	2016
Comparative Analysis of Fresh and Cryopreserved Boar Spermatozoa Using RNA Sequencing	**Reproduction, Fertility, and Development**	2015
Repeated polyploidization of *Gossypium* genomes and the evolution of spinnable cotton fibres	**Nature**	2012
Prediction of Cell Penetrating Peptides by Support Vector Machines	**PLoS Computational Biology**	2011
Machine Learning and Mapping Algorithms Applied to Proteomics Problems	**ProQuest/UMI Dissertation Publishing**	2011
The Proteogenomic Mapping Tool	**BMC Bioinformatics**	2011
Prediction of peptides observable by mass spectrometry applied at the experimental set level	**BMC Bioinformatics**	2007

Funding

Total Funding: $68,461.28

Role	Title	Agency	Amount	Date	Status
PI	Campus Champion Allocation for The Jackson Laboratory	NSF-XSEDE	905,500-SUs (~$45,275.00)	27-Jun-2016	**Funded**
PI	Finishing the *Crotalus horridus* (Timber Rattlesnake) Draft Genome with the MidSouth Computational Biology and Bioinformatics Society	1. MSU-IGBB 2. MSU-CSE 3. MSU-CVM	$10,224.28	21-May-2015	**Funded**
PI	Sequencing and Assembling a Draft Genome of *Kokia drynarioides*, a *Gossypium* Outgroup	1. MSU-IGBB 2. USDA-FAS-Borlaug	$12,962.00	20-Mar-2015	**Funded**
Co-PI	Developing Resources and Tools to Facilitate Discovery of Disease-Associated microRNAs in Farm Animals	USDA-NIFA	$448,158.00	02-May-2014	Not Funded

Service

Technical Committee Member	**Practice and Experience in Advanced Research CyberInfrasctructure (PEARC) Conference** - 2018 Pittsburgh, PA	2017-2018
Organizing Committee Member	**MidSouth Computational Biology and Bioinformatics Society Annual Conference** - 2018 Starkville, MS	2017-2018
XSEDE Campus Champion The Jackson Laboratory	**Extreme Science and Engineering Discovery Environment (XSEDE)** National Science Foundation	2016-Present
Workshop Organizer - Evolution of Genome Size	**Plant and Animal Genome Conference** San Diego, CA	2016-Present
Project Leader - *Crotalus horridus* (Timber Rattlesnake) Genome Project	**MidSouth Computational Biology and Bioinformatics Society**	2012-2018
Session Chair - Proteomics Session	**MidSouth Computational Biology and Bioinformatics Society Annual Conference** Oxford, MS	2012

Certifications, Training, & Licensures

Scaled Agile	Certified SAFe 4 DevOps Practicioner	2018
Scaled Agile	Leading SAFe (Certified SAFe 4 Agilist)	2018
The Jackson Laboratory	Frontline Leadership Training	2018
Karrass	Effective Negotiating	2017
Karrass	Negotiating Effectively Within Your Own Organization	2017
American Red Cross	Adult CPR/AED, Infant CPR, and First Aid *(GVCZ9G)*	2017-2019
Software Carpentry Foundation	Software Carpentry Certified Instructor	2016
ROI Training	Google Cloud Platform Fundamentals Certificate (*CP100A*)	2016
Bagley College of Engineering Mississippi State University	Information Assurance Certificate *(NSTISSI #4011 & NSTISSI #4014 Certified Program)*	2010
Federal Communications Commission Amateur Radio Service	Amateur Radio Technician License *(Callsign: KF5CZK)*	2009
Bruker Daltonics	FLEX Series MALDI-TOF MS Operator Course	2006
Bagley College of Engineering Mississippi State University	Computational Biology Certificate	2007
Microsoft	Microsoft Certified Professional *Windows NT 4.0, Networking Essentials*	1998-2001

| CompTIA | CompTIA A+ Certified Professional *(COMP10072148)* | 1998 |

Awards & Honors

JAX Champion - Excellence in Quality and Innovation Award	The Jackson Laboratory Bar Harbor, ME | Farmington, CT | Sacramento, CA	2018
1st Place Postdoctoral Oral Presentation	MidSouth Computational Biology and Bioinformatics Society Annual Conference Little Rock, AR	Mar 13-14 2015
3rd Place Student Oral Presentation	MidSouth Computational Biology and Bioinformatics Society Annual Conference Oklahoma City, OK	Feb 23-24 2008
1st Place Student Poster Presentation	MidSouth Computational Biology and Bioinformatics Society Annual Conference New Orleans, LA	Feb 1-3 2007
University Honors Program - Phase I Scholar	Mississippi State University Starkville, MS	May 2000

Teaching Experience

Instructor	Introduction to High Performance Computing Workshop The Jackson Laboratory	2016-2018
Instructor	Excel, OpenRefine, Python Data Carpentry Workshop The Jackson Laboratory	2017
Instructor	Cloud Computing for Genomics Data Carpentry Workshop The Jackson Laboratory	2017-2018
Instructor	R for Reproducible Scientific Analysis Software Carpentry Workshop The Jackson Laboratory	2016
Mentor	Day One Leadership Community Mississippi State University	2013-2015
Guest Lecturer	High Throughput Sequence Analysis (*CSE 6990*) Department of Computer Science & Engineering Mississippi State University	2015
Mentor	Norman E. Borlaug International Agricultural Science and Technology Fellowship Program Foreign Agricultural Service United States Department of Agriculture	2014-2015
Mentor	Research Experience for Undergraduates Undergraduate Research in Computational Biology Mississippi State University	2007-2015

Lecturer	Biochemistry Boot Camp Department of Chemistry Mississippi State University	2014-2015
Guest Lecturer	Genomes & Genomics (*BCH 8653*) Department of Biochemistry & Molecular Biology Mississippi State University	2012
Student	Tools for Teaching Introductory Computer Science (*CSE 8990*) Department of Computer Science & Engineering Mississippi State University	2010
Guest Lecturer	Essentials of Molecular Genetics (*BCH 4113*) Department of Biochemistry & Molecular Biology Mississippi State University	2009
Teaching Assistant	Protein Methods (*BCH 4414/6414*) Department of Biochemistry & Molecular Biology Mississippi State University	2004
Teaching Assistant	Biochemical Methods (*BCH 4805/6805*) Department of Biochemistry & Molecular Biology Mississippi State University	2002

Reviewing Activities

Gene	Nucleic Acids Research	Bioinformatics
Interdisciplinary Sciences: Computational Life Sciences	Genomics, Proteomics, and Bioinformatics	BMC Genomics
PLoS One	BMC Bioinformatics	Journal of Translational Medicine
Journal of Biocomputing	BioSystems	

Software Tools

The Proteogenomic Mapping Tool. http://www.agbase.msstate.edu/tools/pgm/	A Java-based implementation of the Aho-Corasick string searching algorithm which takes peptides observed by mass spectrometry and maps them onto a source genome.
PepOut – A Distance Based Peptide Validation Tool. http://www.agbase.msstate.edu/cgi-bin/tools/	A Perl/MySQL-based program that uses the k-nearest neighbor algorithm combined with Bayesian probabilities to perform mass spectrometry peptide validation using target and decoy databases.

Skills

Software Skills	Programming Languages: Perl, C/C++, Python, Java, MPI Statistical Analysis: R, SAS Other: MySQL, WEKA Machine Learning Toolkit, Apache, BioPerl, BioPython, ABySS Sequence Assembler, Velvet Sequence Assembler, Roche 454 GS De Novo Assembler, CLC Genomics Workbench
Research Skills	Genomics, Genome Sequence Assembly & Analysis, Proteomics, Mass Spectrometry, Machine Learning, Data mining, Algorithm Analysis & Design, Eukaryotic Tissue Culture, High Performance Computing, High Performance Liquid Chromatography, Gas Chromatography, Gel Electrophoresis
Miscellaneous	German (minimal professional proficiency), Grant Writing, Accounting, Marketing, Financial Management, Principles of Management

Presentations

MCBIOS Timber Rattlesnake Genome Project: Current Status & Lessons Learned	MidSouth Computational Biology and Bioinformatics Society Annual Conference Starkville, MS	Mar 31 2018
Making It Work: Facilitating Collaboration between IT and Researchers for Computation-Intensive Programs **Invited Presentation**	University of Mississippi Medical Center Jackson, MS	Mar 28 2018
A Mitochondrial Genome of the Timber Rattlesnake (*Crotalus horridus*) and a Reptilian Mitochondrial Phylogeny	MidSouth Computational Biology and Bioinformatics Society Annual Conference Memphis, TN	Mar 3-5 2016
Genome size evolution among closely related species in *Gossypium*	Plant and Animal Genome Conference XXIV San Diego, CA	Jan 9-13 2016
Genome Assembly & Analysis – From "Gold-Standard" Assemblies to "Base Metals" **Kriton-Hatzio Symposium Keynote Address**	Southern Section of the American Society of Plant Biologists (SS-ASPB) Dauphin Island, AL	Mar 28-29 2015
Assembly and molecular characterization of a draft genome sequence and annotation of the plant-parasitic nematode *Rotylenchulus reniformis*	MidSouth Computational Biology and Bioinformatics Society Annual Conference Little Rock, AR	Mar 13-14 2015
Update on the Timber Rattlesnake Genome Collaborative Project	MidSouth Computational Biology and Bioinformatics Society Annual Conference Little Rock, AR	Mar 13-14 2015
Draft Genome Assembly and Comparative Genomic Analysis of the Plant-Parasitic Nematode *Rotylenchulus reniformis*	Plant and Animal Genome Conference XXIII San Diego, CA	Jan 10-14 2015
Molecular Insights into the *Rotylenchulus reniformis* transcriptome	Plant and Animal Genome Conference XXIII San Diego, CA	Jan 10-14 2015
MCBIOS Timber Rattlesnake Genome Project Collaboration	MidSouth Computational Biology and Bioinformatics Society Annual Conference	Mar 6-8 2014

Stillwater, OK

Sequencing, Assembly, and Characterization of the Genome of *Rotylenchulus reniformis*	MidSouth Computational Biology and Bioinformatics Society Annual Conference Stillwater, OK	Mar 6-8 2014
SABRe – Sequence Assembly By Reference	MidSouth Computational Biology and Bioinformatics Society Annual Conference Stillwater, OK	Mar 6-8 2014
Assembly, Annotation and Proteogenomic Mapping of *Rotylenchulus reniformis*	Plant and Animal Genome Conference XXII San Diego, CA	Jan 11-15 2014
Unveiling the Molecular Arsenal within *Rotylenchulus reniformis* via *de novo* Transcriptome Assembly.	Annual Meeting of the Society of Nematologists Knoxville, TN	Jul 14-17 2013
Identification of Protein Coding Genes in the Plant-parasitic Nematode *Rotylenchulus reniformis* through Comparative Proteogenomic Mapping with *Caenorhabditis elegans*	MidSouth Computational Biology and Bioinformatics Society Annual Conference Columbia, MO	Apr 5-6 2013
The Genome of Reniform Nematode, *Rotylenchulus reniformis*	MidSouth Computational Biology and Bioinformatics Society Annual Conference Columbia, MO	Apr 5-6 2013
De Novo Transcriptome Assembly of the Plant-Parasitic Nematode *Rotylenchulus reniformis*	MidSouth Computational Biology and Bioinformatics Society Annual Conference Columbia, MO	Apr 5-6 2013
Genome Size Evolution In *Gossypium* (Cotton): Progress and Prospects	Plant and Animal Genome Conference XXI San Diego, CA	Jan 12-16 2013
Assembling and Annotating the Genome of a Plant Parasitic Nematode, *Rotylenchulus reniformis*, with Sequences Obtained Using 2nd Generation Sequencing Technologies	MidSouth Computational Biology and Bioinformatics Society Annual Conference Oxford, MS	Feb 17-18 2012
The *Rotylenchulus reniformis* Genome: Sequencing, Assembly, and Annotation	Plant and Animal Genome Conference XX San Diego, CA	Jan 14-18 2012
Sequencing and Analysis of the *Rotylenchulus reniformis* Transcriptome	Plant and Animal Genome Conference XX San Diego, CA	Jan 14-18 2012
Proteogenomic Mapping of *Gallus gallus* Serum	MidSouth Computational Biology and Bioinformatics Society Annual Conference College Station, TX	Apr 1-2 2011
Experimental genome annotation by proteogenomic mapping: experimental evidence for predicted proteins, novel proteins and protein structure	Workshop on Nanotechnology, Proteogenomics and Visual Analytic Applications for Schistosomiasis Control Abuja, Nigeria	Dec 14-18 2010
Metrics for Mass Spectrometry Dataset Quality Validation	MidSouth Computational Biology and Bioinformatics Society Annual Conference Jonesboro, AR	Feb 19-20 2010

A Staged Search Strategy for Proteomics Based Structural Annotation in Chicken	Plant and Animal Genome Conference XVIII San Diego, CA	Jan 9-13 2010
Proteomics Based Genome Annotation in *Gallus gallus*	Mississippi State University Digital Biology Learning Community Starkville, MS	Oct 21 2009
Features Predictive of Cell Penetrating Peptides Validated by Machine Learning Classifiers	Research in Computational Molecular Biology (RECOMB) 2009 Tucson, AZ	May 18-21 2009
Prediction of Cell Penetrating Peptides by Machine Learning Classifiers	Intelligent Systems for Molecular Biology (ISMB) 2008 Toronto, ON	Jul 19-23 2008
Proteomics Based Structural Genome Annotation in Chicken	Avian Genomics and Gene Ontology Annotation Workshop Starkville, MS	May 19-20 2008
Prospecting for new genes in the chicken genome using proteomics	Cold Spring Harbor Laboratory - Genome Informatics Meeting Cold Spring Harbor, NY	Nov 1-5 2007
Pepfly: A Tool for the Prediction of Peptides Observed by Mass Spectra	MidSouth Computational Biology and Bioinformatics Society Annual Conference New Orleans, LA	Feb 1-3 2007