

**Michelle Marie Jonika**  
Genetics Interdisciplinary Program  
Texas A&M University  
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## **EDUCATION**

### **Ph.D., Genetics**

Texas A&M University  
Research Adviser: Heath Blackmon

**2018-present**

College Station, TX

### **B.S., Forensic and Investigative Science (Genetics minor)**

Texas A&M University Deans list 2016-2018  
Thesis: *Genes as Markers of Sex for Forensic Entomology*  
Research Adviser: Aaron M. Tarone

**2014-2018**

College Station, TX

## **RESEARCH GRANTS AND MAJOR FELLOWSHIPS**

2019 – The evolution of sex chromosomes in charismatic tiger beetle species of the southern United States  
Texas Ecolab Fund – \$18,521

2018 – 2022 – STEM Fellowship, Texas A&M University. Interdisciplinary Genetics Program – \$215,000

## **PEER-REVIEWED PUBLICATIONS**

4. Johnathan Lo, **M.M. Jonika**, H. Blackmon. 2019. micRocounter: Microsatellite Characterization in Genome Assemblies. *G3: Genes | Genomes | Genetics* 9(10), 3101-3104
3. Riddhi D Perkins, J.R. Gamboa, **M.M. Jonika**, J. Lo, A. Shum, R.H. Adams, H. Blackmon. 2019. A Database of Amphibian Karyotypes. *Chromosome Res* 1-7
2. Blake Guard, J Honneffer, A Jergens, **M.M. Jonika**, L. Toresson, Y. Lawrence, C. Webb, S. Hill, J. Lidbury, J. Steiner, J. Suchodolski. 2018. Longitudinal Assessment of Microbial Dysbiosis and Fecal Bile Acids Concentrations in Dogs with Chronic Inflammatory Enteropathy. *J Vet Intern Med.* 2018 33:1295-1305.
1. **Michelle M. Jonika**, C.E. Hjelman, A.M. Faris, A.S. McGuane, A.M. Tarone. Genes as Markers of Sex for Forensic Entomology. *Journal of Forensic Science – Under Peer Review*

## **OTHER PUBLICATIONS**

6. **Michelle M. Jonika**, A.M. Faris, C.E. Hjelman, A.M. Tarone. 2019. Transcriptional Markers of Sex Determination for Forensic Entomology. *Proceedings of the American Academy of Forensic Sciences.* 2019 25 813
5. Amanda B. Blake, B.C. Guard, J.B. Honneffer, **M.M. Jonika**, J.A. Chaitman, J.A. Lidbury, J.M. Steiner and J.S. Suchodolski. 2018. Altered Fecal Fatty Acid, Sterol and Bile Acid Metabolism in Dogs with Acute Diarrhea. *J Vet Intern Med.* 2018 32:2248.
4. **Michelle M. Jonika**, A.M. Tarone. 2018. Genes as Markers of Sex for Forensic Entomology. Undergraduate Thesis, Texas A&M University, College Station, Texas.

3. Blake C. Guard, **M.M. Jonika**, J.B. Honneffer, J.A. Lidbury, J.M. Steiner, A.E. Jergens, and J.S. Suchodolski. 2017. Longitudinal Characterization of the Fecal Metabolome in Dogs with Inflammatory Bowel Disease. *J Vet Intern Med.* 2017 31:1289.
2. Blake C. Guard, **M.M. Jonika**, J.B. Honneffer, J.A. Lidbury, J.M. Steiner, and J.S. Suchodolski. 2017. Development and Analytical Validation of an Assay for the Quantification of Fecal Bile Acids. *J Vet Intern Med.* 2017 31:1289.
1. Blake C. Guard, J.B. Honneffer, **M.M. Jonika**, J.A. Lidbury, J.M. Steiner, A.E. Jergens, and J.S. Suchodolski. 2017. Longitudinal Characterization of Dysbiosis and Unconjugated Bile Acid Profiles in the Feces of Dogs with Inflammatory Bowel Disease. *Gastroenterology* 152.5 (2017): S992.

## **PRESENTATIONS** (T: talk, P: poster, † coauthored with a student/postdoc)

### **2019**

*Rise of the Machines: Using a Convolutional Neural Networks to Elucidate Genomic Architecture*; Genetics Department G2 Seminar Series; College Station, Texas-T

*Opportunities for Genetics Research and How to Apply to Graduate Schools*; Genetics and Biochemistry Club; Clemson, South Carolina-T

*Effects of Host/ Graft Sex Mismatch on Survival and Integration of Neural Progenitor Cell Transplants for Spinal Cord Injury*; Department of Biology Student and Postdoc Research Conference; College Station, TX-P† (co-author Michael Pitonak)

*Mode and Temp of Microsatellite Evolution in Insects*; Department of Biology Student and Postdoc Research Conference; College Station, Texas-P

*Microsatellite Evolution in Hexapods*; Southeast Texas Evolutionary Genetics and Genomics; College Station, Texas-P

*Sixty percent of the time, it works every time: sex identification in immature Calliphoridae*; Southeast Texas Evolutionary Genetics and Genomics; College Station, Texas- P† (co-author Alexander McGuane)

*Mode and Tempo of Microsatellite Evolution Across 300 Million Years of Insect Divergence*; Evolution; Providence, Rhode Island-T

*micRoCounter: Identification of Microsatellite Inference*; Biology Undergraduate Research Symposium; College Station, Texas- P† (co-author Johnathan Lo)

*Characterization of Microsatellite Evolution in Insects*; Houston Regional Ecology and Evolution Student Symposium; Houston, Texas-T

*micRoCounter: Identification of Microsatellite Inference*; Texas Genetics Society; College Station, Texas- P† (co-author Johnathan Lo)

*Mode and Tempo of Microsatellite Evolution in Insects*; Texas Genetics Society; College Station, Texas-T

*Rapid Identification of Microsatellite Content*; Student Research Week; College Station, Texas- P† (co-author Johnathan Lo)

*Microsatellite Evolution in Hexapods*; Student Research Week; College Station, Texas-P

*Characterization of Microsatellite Evolution in Insects*; Genetics Recruiting Symposium; College Station, Texas-P

*Transcriptional Markers of Sex Determination for Forensic Entomology*; American Academy of Forensic Science; Baltimore, Maryland-T

### **2018**

*Transcript-based Sex Determination for Forensic Entomology*; Entomological Society of America; Vancouver, Canada-T

*Markers of Sex Determination in Blow Flies*; LAUNCH Research Conference; College Station, Texas—P

*Transcript-Based Sex Determination for Forensic Entomology*; International Association for Identification; San Antonio, Texas—P

*Transcript-Based Sex Determination for Forensic Entomology*; Southeast Texas Evolutionary Genetics & Genomics Symposium; Houston, Texas—P

*Let's Talk About Sex: Identifying Female and Male Markers in Blow Flies*; Ecological Integration Symposium; College Station, Texas—T

*Let's Talk About Sex: Identifying Female and Male Markers in Blow Flies*; Undergraduate Student Research Conference; College Station, Texas—T

*Development of Mass Spectral Database Using Direct Analysis in Real Time (DART)*; American Academy of Forensic Science; Seattle, Washington—P

*Let's Talk About Sex: Identifying Female and Male Markers in Blow Flies*; Entomology Department Seminar; College Station, Texas—T

## 2017

*Development of Mass Spectral Database Using Direct Analysis in Real Time (DART)*; USR Conference; College Station, Texas—T

*Development of Mass Spectral Database Using Direct Analysis in Real Time (DART)*; U.S. Customs and Border Protection—T

*Development and Analytical Validation of an Assay for the Quantification of Fecal Bile Acids*; USR Conference; College Station, Texas—P

## **WORKSHOPS** (F: Facilitated, T: Taught, † Co-taught)

Texas Genetics Society (TGS) R Workshop, TGS—F [~150 Attendees]

Computational and Artificial Intelligence, TAMU Institute of Data Science (TAMIDS)—T†(Gave presentations below) [12 Attendees]

1. *Use of Convolutional Neural Networks for Determination of Pseudoautosomal Region in Mammals*
2. *Simulations and Factorial Design*

R Hackday, Department of Biology—T† (co-taught with Dr. Heath Blackmon)[~50 Attendees]

R Workshop, Aggies Veterans Who Code—F [15 Attendees]

## **HACKING COMPETITIONS**

2019 TAMU Datathon

1. On the Origins of Tacos- <https://devpost.com/software/on-the-origins-of-tacos>
2. Random Forest Models for Predicting Oil Drill Failures-  
<https://devpost.com/software/random-forest-models-for-predicting-oil-drill-failures>

## **TEACHING EXPERIENCE**

(U- undergraduate) Average student Evaluation: 4.7/5.0

Laboratory Instructor

2019 Introduction to Genetics

U-64 Students

## **WORK EXPERIENCE**

**Research Assistant, Department of Biology, Texas A&M**

May 2019-present

Lead researcher on three projects focused on comparative genomic analyses of mammalian and invertebrate genomes. Responsibilities include maintaining public code base, molecular wet lab work and mentoring of undergraduate and graduate students.

**Research Technician, Department of Entomology, Texas A&M** May–August 2018  
Completed research from undergraduate thesis and follow-up studies for sex determination in forensic entomology.

**Supplemental Instructor-Organic Chemistry II, Texas A&M** January–May 2018  
Helped facilitate understanding and teach concepts for organic chemistry II.

**Research Intern, U.S. Department of Homeland Security, Newark, New Jersey** June–August 2017  
Created a direct analysis in real-time mass spectral database of drug standards for use in a forensic chemistry laboratory at U.S. Customs and Border Protection.

**Student Researcher, Gastrointestinal Laboratory, Texas A&M** January 2016–August 2018  
Investigated the effects of antibiotics on the gut health and microbiota of companion animals.

### **AWARDS AND MINOR GRANTS**

Oral Presentation Award, Genetics Graduate Student Association (\$250), Texas A&M University. 2020  
1<sup>st</sup> Place Genetics Graduate Student Science Art Competition (\$200), Texas A&M University. 2019  
Genetics Graduate Student Travel Award (\$600), Texas A&M University. 2019  
Undergraduate Research Scholar, Texas A&M University. 2018  
Texas A&M Senior Merit Award, Texas A&M University. 2018  
1<sup>st</sup> place Poster Presentation (\$250), Texas A&M University Student Research Week. 2018  
Sigma Xi STEM Award (\$250), Texas A&M University Student Research Week. 2018  
1<sup>st</sup> place Department of Entomology Mentorship Symposium (\$500), Texas A&M University. 2018  
George Bush Presidential Library Foundation Undergraduate Travel Grant (\$750). 2017  
Carolyn J. and Robert J. Allison Jr. Scholarship (\$3,000), Anadarko Petroleum Corporation, 2017  
2<sup>nd</sup> place Poster Presentation (\$150), Texas A&M University Student Research Week. 2017  
Distinguished Student Award, Texas A&M University. 2016–2018

### **OUTREACH AND COMMUNITY SERVICE**

Ethel Ashworth-Tsutsui Memorial Award Selection Committee, Texas A&M University. 2019.  
Women in Science and Engineering, Expanding your Horizons Workshop Helper, Texas A&M University. 2019.  
Southeast Texas Evolutionary Genetics and Genomics Planning Committee, Texas A&M University. 2019.  
Mentoring Undergraduate Research invited Panelist, Texas A&M University. 2019.  
R Workshop Facilitator Texas Genetics Society Annual Meeting, Texas A&M University. 2019.  
Student Research Week Judge, Texas A&M University. 2019.  
Undergraduate Research Symposium Judge, Texas A&M University. 2019.  
Science Bowl, Texas A&M University. 2019.  
Junior Science Bowl, Texas A&M University. 2019.  
Texas Junior Academy of Science Judge, Texas A&M University. 2019.  
Internship Opportunities Presentation, Aggie Forensic Science Org. 2018.  
College Education Outreach (Aggies Reaching Out), Texas A&M University. 2018.  
American Academy of Forensic Science Annual Meeting. 2017–2019.  
Chemistry Open House Outreach, Texas A&M University. 2016–2017  
Forensic Science Outreach, Magnolia High School. 2015–2016  
Aggieland Saturday Outreach, Texas A&M University. 2015–2018  
Big Event, Texas A&M University. 2015–2018.  
Aggie Relay for Life, Texas A&M University. 2015–2018.  
Special Olympics, Texas A&M University. 2015–2018.  
Freshmen Orientation Program Leader, Texas A&M University. 2015–2016.

### **MENTORED STUDENTS** (U: Undergraduate, G: Graduate)

Alexander McGuane- U  
Anika Sharma- G  
Ragan Miller-U  
Riddhi Perkins-U

Joseph Ward- U  
Johnathan Lo- U  
Alexandra Kostantinov-U

### **PROFESSIONAL ORGANIZATIONS**

American Academy of Forensic Science  
International Association for Identification  
North American Forensic Entomology Assoc.  
Genetics Graduate Student Organization  
Golden Key International Honor Society  
Kappa Theta Epsilon Co-Op Honor Society

Women in Science and Engineering  
National Society of Leadership and Success  
Sigma Alpha Lambda  
Entomological Society of America  
Society for the Study of Evolution  
Genetics Society of America

### **ADDITIONAL TRAINING**

#### **Texas A&M TEEX Forensic Science Academy**

Foundations of Courtroom Testimony  
Forensic Technician I  
Latent Print Processing  
Foundations of Fingerprint Comparison  
Digital Forensics Basics  
Cyber Ethics  
Crime Scene Investigation  
Cyber Law and White Collar Crime  
Foundations of Forensic Photography  
Fingerprint Processing on Difficult Surfaces  
Investigative Tools and Equipment

#### **National Institute of Justice**

Familial DNA Searching

#### **HPRC Short Courses**

Introduction to Linux  
Introduction to Python  
Introduction to Scientific Python  
Introduction to Next Generation Sequencing  
NGS Assembly  
Introduction to Julia  
Introduction to Deep Learning with TF  
Introduction to CUDA

#### **TAMU Institute of Data Science**

Introduction to Data Science  
Exploratory Data Analysis with pandas  
Machine Learning with Scikit-learn  
Deep Learning with Keras  
NVIDIA Deep Learning Computer Vision  
Computational and Artificial Intelligence