

### Hongxiang Liu still has a ‘taste’ for new challenges after early career success

By Charlene Betourney

When she’s immersed in her work, Hongxiang Liu admits she can look a bit like a mad scientist, but she’s not mad, just focused.

“What most people might not know, when I work, I look very serious, almost mad-like, especially when I’m concentrating,” Liu said playfully.

An associate professor in the University of Georgia’s Department of Animal and Dairy Science (ADS) and a member of [UGA’s Regenerative Bioscience Center \(RBC\)](#), Liu is accustomed to working on serious topics. Her research focuses on understanding of how taste buds are formed and maintained, with the goal of advancing the development of effective treatments for taste disorders caused by



Associate Professor  
Hongxiang Liu

deficiencies of taste bud progenitors in clinical conditions, including prolonged exposure to chemotherapy and radiotherapy.

Recruited to the ADS faculty in 2013 as part of the RBC, Liu was a rare find in a junior faculty member, bringing with her a \$2 million, five-year R01 grant from the National Institutes of Health (NIH) to study the mechanisms of molecular and genetic regulation of taste bud cell differentiation.

And this year, Liu became one of the first UGA scientists to work on COVID-19 research and her lab was among the first

labs to show the [relationship between the coronavirus and taste bud survival](#).

“My goal is to train young scientists, work together with my colleagues and contribute to being part of this historical era of research discovery,” said Liu. “The greatest has not come yet, but it’s coming.”

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### Department Info

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## Associate Professor Hongxiang Liu

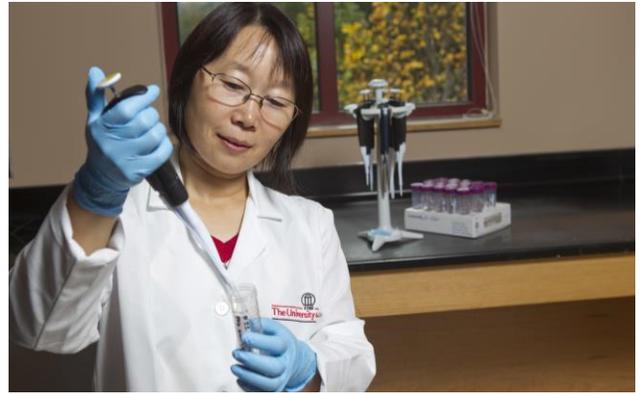
The COVID-19 pandemic has completely changed who we are and how we live. It's normal for us to feel worried, anxious and somewhat isolated. In this environment it would be easy to see the glass half empty, but for Liu, time is better spent counting blessings and looking ahead.

“The COVID crisis is a transforming experience for me. I realized how blessed I am by having three brilliant students—responsible and self-conscientious,” said Liu, adding that crisis can foster innovation, opportunity and the need to find a sense of normalcy. “For now, working remotely works better for me and my group, but I still look forward to coming back to the office. It will be nice to see colleagues and friends in person.”

Talking with friends, laughing and playful teasing add a bit of levity to Liu's workday. She also enjoys a good hike.

“Before the pandemic, I use to walk around Herrick Lake every day. I would jokingly refer to it as ‘my lake,’” she said.

Born and raised in China, Liu earned her doctoral degree from one of China's most renowned universities, Peking University, a member of the C9 League, similar to the Ivy League of American universities. She earned her medical degree from Henan Medical University, now part of [Zhengzhou University](#), one of the most highly rated education and research institutions in central China, and one of only 42 institutions listed as a Double First Class University by the Chinese government.



*Associate Professor  
Hongxiang Liu*

As a child, Liu was curious about nature and yearned to become a scientist. This curiosity has stuck with her throughout medical school and her career. However, a real-life experience during her residency profoundly impacted Liu, leading her to decide against accepting a position as a medical doctor.

“During residency training, I had a chance to escort a leukemia patient to a larger hospital for treatment. She was eight years old, and very smart for her age. At that time, there was no cure for leukemia. The sad ending of the little girl caused me to reexamine my goals and strengthen my desire to pursue scientific research,” said Liu.

Liu turned down the opportunity to work at The First Affiliated Hospital of Zhengzhou University, and set course for the United States.

Outside of her collaborations in the biomedical field, Liu has collaborated with ADS scientists, including Alexander Stelzleni and Dean Pringle on the characterization of taste buds (e.g., taste cell types and taste receptor molecule expression) in large livestock animals. Liu

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# Associate Professor Hongxiang Liu

also worked on chicken taste buds, the sensory organs that motivate feed intake, with Prasangi Rajapaksha, a former ADS graduate student now working at the University of Kentucky, and today with Romdhane Rekaya, UGA Professor of Animal Breeding and Genetics.

Liu's demand for academic excellence has earned the praise of her students. Students regularly comment that her lab is demanding, but frequently describe Liu as dedicated, respectful, kind and genuinely concerned for the success of her students.

"Dr. Liu is the kind of scientist who is dedicated to science, sparing no expense of time or effort to do anything possible in helping

us with our careers. She is almost 'mom-like' in thinking about her students, even much more than herself. She is always trying to train her students in the way that she thinks will best fit them," said ADS doctoral student Zhonghou Wang.

Liu has created a tough but supportive mentoring partnership in which research students feel equal contributors and are held accountable for creating their own learning experiences.

"I really enjoy working with her and the way she gives us the freedom to work on our own projects. She always makes time for us to discuss any research-related problems, which makes us more efficient and productive," said graduate

research assistant Mohamed Ishan. "If our approach is wrong, she corrects us to do it the right way. Whether it is an experiment, writings, or any research-related activity — she sets the bar — one that helps us to improve and reach up to her standard, or better yet, even more than she expected. She inspires us in every single way to develop as a budding scientist and to be a better person."



*Dr. Liu and her students enjoy time away from the lab. Students had fun painting her caricature.*



# I take pride in our Animal and Dairy Science Personnel

*By Dr. Francis Fluharty, Professor and Head*

I just want to let everyone know how proud I am of our ADS students, staff, and faculty! This year has presented several challenges for people in the department. In addition to budget cuts, our people have kept farms and the meat lab running, researchers and their staff and graduate students have kept research going, and teaching faculty have done an absolutely awesome job of dealing with uncertainty, and teaching in-person and online. Thanks to the support of our administration, we are advertising for an associate professor or full professor to fill the beef Extension and research position in Tifton! In addition, we are starting the process of advertising for a faculty position in Athens dealing with microbiome bioinformatics! This position will allow us to look at large data sets to identify how the microbial population in the digestive tract of livestock, and humans, impacts growth, and health. It will support the work of Dr. Todd Callaway

and Dr. Dean Pringle who are investigating the relationship between the diversity of rumen microbial population (microbiome) and carcass merit in Angus steers! I remember when ruminant nutritionists were looking almost exclusively at forage digestibility. Now, we're looking at how the microbial population in the digestive tract impacts not only digestibility and growth, but marbling, too, with cattle on the same diet.

There have been tough choices, too, as the result of several years of low milk prices coupled with badly needed repairs, and the inability of our dairies to qualify for any price support programs as we are a university farm. As a result, we have closed the Tifton Dairy. The decision has been made to shift Dr. Tao to the Athens campus, so that he has closer interactions with the other dairy scientists, Dr. Jillian Bohlen, a reproductive physiologist, and Dr. Valerie

Ryman, an immunologist whose research focuses on mastitis. Dr. Tao's move to Athens will allow students in ADS to learn more about how stress and immunity interact, and will allow for more opportunities for undergraduate and graduate research. Dr. Tao's research uses technology that measures an animal's daily feed intake. This is something that is not currently available in Athens, but the movement of his equipment to Athens brings new opportunities in both teaching and research, and will strengthen our overall undergraduate and graduate programs in the dairy area.

However, ADS is not abandoning its mission in Tifton. The ADS department is transitioning the Tifton campus more toward research and Extension efforts impacting the beef industry. We have a new position in beef Extension and research advertised, and the person hired will work on the Tifton campus.

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# From the Department Head

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With the Alapaha Range Grazing Unit and the Tifton Coastal Plain locations having different soil types, ADS faculty will be able to investigate beef production under different conditions. The Alapaha soil is very deep, poorly drained, moderately slow to slowly permeable, and the forage grown is primarily bahiagrass, which will grow on soils too poorly drained for bermudagrass but has a protein content of only 8%. The Tifton soil is very deep, well-drained, and adapted to growing alfalfa, bermudagrass, and clover. These forages are higher in protein, especially alfalfa and clover. Thus, with two research farms only 20 miles

apart, having vastly different soil types and forages, ADS scientists will be able to conduct research on growing animal and cow nutrition supplementation requirements with forages of differing quality. This will assure that we are able to serve beef producers in both southeast Georgia and southwest Georgia, whose management plans differ due to differences in forages that are able to be grown in the different regions.

The goal of these changes is to use our fiscal, personnel, and land resources responsibly to best serve the beef and dairy industries in Georgia, and to consolidate our scientists serving these two industries

into groups with a greater critical mass in both Athens and Tifton so that interaction is strengthened, thus increasing interdisciplinary research and Extension efforts that addresses the complex issues facing animal agriculture.

Thanks,  
Francis



*Francis Fluharty,  
Animal and Dairy Science  
Department Head*



## Darren Seidel: A New Breed of Student

By Cynthia Adams

Photo by Nancy Evelyn

Darren Seidel, a UGA Ph.D. candidate in Animal and Dairy Science, was a high schooler in Sanderson, Texas when it became clear what he wanted most.

He wanted his own livestock.

Now, he's actively pursuing that ambition as well as completing a doctorate, and has begun developing a sheep flock back in the Lone Star State. His ewes "will be lambing soon," he explains.

Seidel began with Dorper sheep, a South African breed, distinctive for a black face and white body. "Or, Dorper sheep can be all white, with a white head and body," Seidel clarifies.

He calls his business Seidel Livestock Company.

He is hands on, whether from powering through exhausting nights during lambing season to mastering the art of lamb shearing. Shearing, Seidel admits, is harder than it might seem.

Like most things, whether taking a long run or doing research, Seidel is earnest. And once he has a plan, he's totally committed. He rolled up his sleeves and began learning to shear sheep soon after earning his undergraduate degree at Angelo State University.



*Darren Seidel  
Ph.D student in the Department of  
Animal & Dairy Science*

("After a recent trip to Texas, I realized I need more practice with this skill," he jokes.)

He began graduate studies at Purdue, where Seidel studied the effects of heat stress on swine production. After his master's, Seidel came to Georgia, choosing to study the microbial function of the rumen in sheep, goats, and cattle. He shifted career plans from academia to working inside the animal agricultural industry.

During his doctoral studies, he completed a Merck Animal Health internship, one of his "most arduous experiences." It was also key to choices he would make thereon.

"My family never actually had the opportunity to farm or ranch in Southwest Texas, he explains. But he was exposed to ranching from early in life. It fueled his desire to live close to the land.

Continue reading on [gradmag.uga.edu](http://gradmag.uga.edu) website.

## What others think really does matter

By Charlene Betourney

Yao Yao's first and last names are the same, and her friendly demeanor doubles the joy she brings to her colleagues and everyone else she meets.

Let's get to know Yao by hearing what her colleagues and students say about her.

### What others think:

**UGA Leadership, Office of Research:** Yao's success can be defined by the number of times she has been nominated to represent the University of Georgia through external recognition. This year, Yao has been nominated for three awards, ranking her "first" among her peers:

- Mallinckrodt Grant Award
- Searle Scholars Program
- Johnson & Johnson WiSTEM2D Scholars Award

**ADS Department Chair, Dr. Francis Fluharty:** "A benchmark of research performance and success is Dr. Yao's ability to accept rejection and redirect it towards something better. For example, she was awarded the College's Grants on Edge Award. With an investment of only \$4,000, she was able to turn around a rejected proposal, increase preliminary data results and secure funding from the Atlanta-based Regenerative Engineering and Medicine Center 2020 Seed Grant Program for an award amount of \$100,000."



*Assistant Professor Yao Yao*

**RBC Director, Dr. Steven Stice:** "Dr. Yao has been a forward leader in bringing together translational research groups within the department who previously have never worked together. She was instrumental in envisioning her work in neuroscience to complement researchers working in gastrointestinal microbial ecology, food safety and food production. She continues to demonstrate her openness to work with anyone — to gain new skills, perspectives and to acquire data for her research. You often hear her say, 'What do you need from me to do *your* best work?'"

**Graduate Student, Taylor Jade Ellison:** "I met Dr. Yao when I began work as a research technician within the Regenerative Bioscience Center. At first, we began discussion of how I could assist with her experiments as a technician. Soon, I found I enjoyed the discussions on a deeper level and she encouraged me to pursue a master's degree, which has been a goal of mine for some time. When I approached her as a potential advisor, Dr. Yao took me on as a mentee with excitement."

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# Assistant Professor Yao Yao

We have worked together for a year and, when experiments fail, I have no qualms about approaching her with the issues because I know she will respond with encouragement and guidance through new ideas. She has always turned any mistakes I've made in my time as a student into a learning opportunity that inevitably leads to better results and future thought processes. Dr. Yao has always reiterated that we are a team and that, by working together, we will always be successful."

**Graduate Student, Brian Jurgielewicz:** "Dr. Yao has a tireless work ethic and is an inspiring mentor who is always willing to meet, no matter the time! For example, we virtually meet weekly at 9 p.m. every Tuesday and Thursday. I am deeply grateful for her unwavering support and her desire to help me succeed beyond my Ph.D. Dr. Yao has helped me develop as a scientist and a person, and ultimately made my experiences at UGA more

impactful."

Now that we've heard what others think of her, let's take a look at how a highly successful individual like Dr. Yao thinks.

## **What Dr. Yao thinks:**

### **I love my job –**

"As a PI, I have the resources and environment to conduct the research I'm interested in. I really love scientific research, which is a big driver of my career. It's a really good feeling, knowing that your passions and work can benefit people and society."

### **I will find a better way –**

"I really want to become a mentor who can help students, especially women, find their path to success. My training experiences make me appreciate the guidance and generous help from my previous mentors, including Dr. Steven Stice. I hope I can spread the same positive impacts that I have experienced to my students."

### **I might stumble but I will not fall –**

"The COVID crisis is definitely one of the biggest challenges for my career. It casts unexpected difficulties for junior faculty like me. My independent research group officially started on Dec. 1, 2019, three months before the whole campus shut down, which totally changed my plan for lab setup, student training and recruitment. Without efficient in-person instruction, new and rotation students have limited access to training. International students cannot arrive on time due to visa issues. In addition, working remotely changes how networking is established, which is particularly important for a new lab. I appreciate the support from the Regenerative Bioscience Center, our department and my colleagues during this difficult time to help me reshape the budget and my research plans, as well as foster student recruitment."

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*Regenerative Bioscience Center group outing.*



# Assistant Professor Yao Yao

## **I have the time –**

“I enjoy running and hiking, which help me gain confidence, strength and determination in challenges I meet in my career and life.”

## **I will see through this –**

“I have many stories about what can happen when another faculty member at UGA shares your same name.” (Yao Yao College of Pharmacy)

## **I will continue to grow as a person –**

“I have been working on very divergent topics in different stages of my career, from plant development to brain evolution and now on exosome and muscle biology. To me, they are all interconnected. I have always been fascinated by gene regulation in development and diseases with the goal to

improve people's lives. Because of these unique experiences, I am always very interested in interdisciplinary research and inspired by exciting discoveries from other fields.”

## **I create my own success –**

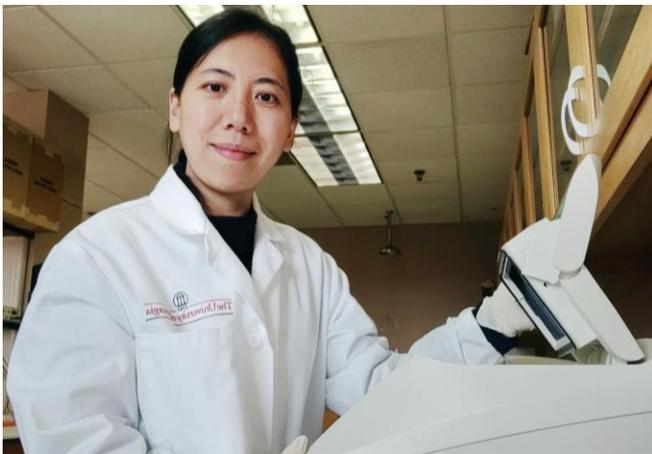
“My research interest is the molecular mechanisms of disease and development. I was proud of my discovery of the hidden similarities between the brains of a mouse and a marine worm. In the last two years, my greatest achievement was to apply my knowledge and training in an exciting new field; combing the therapeutic potentials of exosomes and genome editing to shape efficient treatments for neurological diseases.”

## **I'm so thankful for what I have –**

“Being a mom of two little girls is my biggest personal

achievement, but also the most challenging thing I have ever done. In the past four years, I have been learning and enjoying, and sometimes frustrated and stressed, as a mom with full-time job. After all, I'm grateful that my little girls are making me a stronger and happier woman!”

*Yao Yao is an assistant professor of animal and dairy science in the UGA College of Agricultural and Environmental Sciences. Interested in joining her lab? [view details](#)*



*Assistant Professor  
Yao Yao*



# News

## Assistant Professor Pedro Fontes

Dr. Pedro Fontes' agricultural background began in South America. Born in Brazil, his family owns a cow-calf operation in the southeastern part of the country. Brazil has a strong agricultural history and is today is one of the largest beef producers in the world. Growing up in that environment, it was natural for Fontes to become passionate about agriculture, especially beef production. This passion led him to São Paulo State University, where he obtained his Doctor of Veterinary Medicine degree. During his D.V.M., Fontes was first exposed to beef cattle research and Extension under the mentorship of Dr. Jose Vasconcelos, a leader in the development of estrus synchronization programs in South America. Over the past few decades, Dr. Vasconcelos' group has developed reproductive management strategies that have changed the dynamics of beef production in Brazil. Under his supervision, Fontes was heavily involved in large-scale research projects evaluating the impacts of these reproductive biotechnologies on beef production efficiency.

Fontes started his graduate career at the University of Florida working under Dr. G. Cliff Lamb. Soon after completing his master's degree in Animal Science, Fontes started his Ph.D. in Physiology of Reproduction at Texas A&M University working on a variety of aspects related to reproductive efficiency in beef cattle. According to Fontes, reproductive failure costs the cattle industry more than 2 billion dollars annually.



*Assistant Professor Pedro Fontes*

This is particularly important in states like Georgia, where most of the producers run cow-calf operations and rely on the ability of their cows to become pregnant and successfully produce calves. With that in mind, the focus of Fontes' research during his Ph.D. was to understand the influence of cattle genetic composition and nutritional status on pregnancy establishment and fetal development. Additionally, Fontes was concurrently working on the optimization of estrus synchronization strategies, focusing on improving the endocrine profile of cows during proestrus and its potential impacts on reproductive performance during fixed-time artificial insemination.

During his Ph.D., Fontes characterized differences in embryonic and fetal development between *Bos indicus* and *Bos taurus* cattle, as well as the increased resilience that *Bos indicus* cows possess to withstand nutritional restriction and maintain pregnancy when compared to *Bos taurus*. However, according to Fontes, reproductive efficiency goes beyond just establishing a successful pregnancy:

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# Assistant Professor Pedro Fontes

“after pregnancy establishment, adequate fetal development in utero is paramount for cow-calf producers because the development of the fetus during gestation is associated with its growth and performance after birth.” This is the concept of *fetal programming*, where the uterine environment during gestation programs the postnatal performance of the offspring. He continues: “we gained substantial knowledge on fetal programming over the last few decades. It is now well established that neglecting the importance of nutrition during pregnancy impairs the performance of the offspring throughout the beef production chain, altering animal performance and beef quality.”

Interestingly, cattle producers can incorporate management strategies to manipulate fetal development and consequently improve the performance of their calf crop.”

Pedro Fontes joined the faculty in the Department of Animal & Dairy Science in the spring of 2020. He is currently teaching Beef Production and Management for undergraduate students, as well as mentoring undergraduate researchers. He is part of the UGA Beef Team, contributing to our department’s Extension efforts with his applied reproductive physiology expertise. His efforts focus on increasing reproductive efficiency through the incorporation of reproductive

management strategies and biotechnologies. “Over the last decades, substantial progress has been made in the development of new reproductive technologies. It is now our responsibility to equip beef cattle producers with the best information and training to evaluate the usefulness of these technologies to their operations. We can make positive changes to beef production efficiency through large-scale incorporation of these technologies while making considerable progress in herd genetics at the same time. This causes an increase in production efficiency that leads to a more economically and environmentally sustainable industry.”



*Assistant Professor  
Pedro Fontes*



# Student Spotlight

## Zhonghou Wang

Zhonghou Wang grew up in Tangshan, a city in northern China, and went to college in Wuhan, a city along the Yangtze River in central China. He received his Bachelor's Degree in Veterinary Medicine at Huazhong Agricultural University. After college and instead of pursuing a career as a vet, Zonghou decided to go to graduate school because of his passion for scientific research. He joined Dr. Hong-Xiang Liu's lab in the Regenerative Bioscience Center, Department of Animal & Dairy Science as a master's student in spring 2016. Here he got a chance of investigating one of the most interesting organs in our body, the taste buds. His master's project was about the embryonic origin of taste bud cells. Zhonghou received his master's degree in the summer of 2017 and continued to research as a Ph.D. student under the supervision of Dr. Hong-Xiang Liu. In the past few years, he has been working on addressing several fundamental questions in taste biology.

To answer the questions of how taste buds develop normally and how taste buds are affected in abnormal conditions, many scientific approaches were employed, including administering small molecules in organ cultures and genetic manipulations in animal models. Experience of working with different animal models enables him to think about scientific questions from novel perspectives. With such comprehensive scientific training in the Liu lab, Zhonghou was able to unveil the beauty of this sophisticated sensory organ to the world together with the team and collaborators.

Under the strong support of Dr. Liu, Zhonghou started to use the high throughput transcriptomic profiling (i.e., RNA-sequencing) techniques to understand the genetic program that controls taste bud development and



Zhonghou Wang

homeostasis. Such high-throughput techniques enable him to take on newly emerging taste disorders, like taste dysfunction in COVID19. His recent work “SARS-CoV-2 Receptor ACE2 Is Enriched in a Subpopulation of Mouse Tongue Epithelial Cells in Nongustatory Papillae but Not in Taste Buds or Embryonic Oral Epithelium” was published on ACS Pharmacology & Translational Science and has been highlighted by ACS PressPacs, UGA TODAY, ACS journals and Chemical & Engineering News (C&EN), ScienceDaily and other presses.

In the Department of Animal & Dairy Science, Zhonghou has been enjoying being a witness of many great scientific advances in different fields, ranging from agriculture to medical science, which has significantly broadened his understanding of living organisms. In the future, he will continue to employ multi-disciplinary cutting-edge techniques and methods for research that is beneficial to improving the wellbeing of humans and animals.



# Student Spotlight

## Mohamed Ishan

Mohamed Ishan completed his bachelor's degree in Molecular Biology and Biotechnology at the University of Peradeniya, Sri Lanka. His enthusiasm and passion for research landed him at the University of Georgia and joined Dr. Hong-Xiang Liu's lab in the Regenerative Bioscience Center, Department of Animal & Dairy Science as a Ph.D. student in Fall 2015. Under Dr. Liu's supervision, Ishan got the opportunity to work on taste organogenesis.

Ishan is a fast learner and mastered a broad spectrum of new techniques soon after he joined the lab. He is always happy to test new ideas and explores new directions of research for addressing fundamental questions. He has been highly productive and generated data for (1) a first-author published research article "Increased activity of mesenchymal ALK2-BMP signaling causes posteriorly truncated microglossia and disorganization of lingual tissues" in *Genesis* which is a leading journal in the field of developmental biology; (2) another two first-author publications to be submitted soon; (3) sufficient data for an R01 grant application; (4) a second-author publication "Specific and spatial labeling of *Po-Cre* versus *Wnt1-Cre* in cranial neural crest in early mouse embryos" in *Genesis*, which was recognized by the journal as a most-read



*Mohamed Ishan*

article in 2018. Under the guidance of Dr. Liu, Ishan is currently trying to understand how taste bud cell differentiation is regulated by mesenchymal-epithelial interactions and molecular signaling pathways.

In the Department of Animal and Dairy Science and Regenerative Bioscience Center, he has been able to attend seminars and interact with scientists conducting multi-disciplinary research in the ADS and other departments on campus. He is certain that his experience at UGA has enabled him to broaden and deepen his knowledge and prepared him to continue his career as a scientist for high-quality research.



# Student Spotlight

## Wenxin Yu

Wenxin Yu came from Foshan, an ancient city in Guang-Dong Province of south China that is famous for its martial arts. Dr. Yu lived a wonderful childhood on the campus of Foshan University and later a college life majoring in Veterinary Medicine at South China Agriculture University. In college, he had several lab rotations in veterinary school and learned basic concepts of experimental design, which inspired him to pursue a career in scientific research and discoveries. Yu especially enjoys the processes of using available tools to explore unknown fields. After graduating with a DVM, Yu joined Dr. Hong-Xiang Liu's lab as a Ph.D. student in the Regenerative Medicine Group of the Department of Animal and Dairy Science. He has been working on the identification of novel source(s) of taste bud cell progenitors - in tissue compartments under lingual epithelium, which challenges a long-lasting concept in the field of taste that regards taste bud-surrounding epithelium as the sole source of progenitors for taste bud cells.

With the strong support from Dr. Liu, Dr Yu adopts both in vitro and in vivo methods to unveil previously unrecognized taste progenitors, including embryo cultures, 3-D organoid cultures, and transgenic mouse models. Yu has skillful hands and always strives to reach the excellence of techniques and obtain beautiful data.

Part of his exciting findings has recently been published in a prestigious journal (**Yu W**, Ishan M, Yao Y, Stice SL, Liu H-X. *SOX10-Cre-Labeled Cells Under the Tongue Epithelium Serve as Progenitors for Taste Bud Cells That Are Mainly Type III and Keratin 8-Low*. Stem Cells and Development, 29(10): 638-647, 2020. doi: 10.1089/scd.2020.0022).



Wenxin Yu

He recently submitted another two first-author research articles. The data he has generated were sufficient for two NIH R21 grants (one awarded, another one received a very good score and now pending Council Review). Currently, Yu is moving forward with a highly innovative project to define the cell type of taste bud progenitors using a 3-D organoid culture system and transplantation of tissues from transgenic mice. "If you want to make a difference, you must pay close attention to every detail, seriously" – the valuable working experience under Dr. Liu's supervision has improved his critical thinking about scientific questions and made him more confident to handle challenging issues.

The Department of Animal and Dairy Science is a big family where you can always learn something fantastic from others. Yu openly expresses his feeling honored to be a member of this family, in which scientists and administrators work together to achieve great success in research and instructions.



# Student Spotlight

## Taylor Ellison

Taylor Ellison is an alumnus of The University of Georgia and joined the Regenerative Bioscience Center within the Department of Animal and Dairy Science (ADS) as a full-time employee and graduate student. Taylor works with several research laboratories within the department as a research technician, hoping to further the innovative science being performed within the facility.

Born and raised in Gwinnett County, Georgia, Taylor knew she wanted to become a Georgia Bulldog and follow in the footsteps of her family since she was a kid. From a very young age, she has immersed in the wonder of science thanks to her grandfather. As a former professor in biochemistry, he introduced Taylor to the concepts of scientific advancement and the pursuit of knowledge, which encouraged her endless curiosity and desire to pursue a career in research. ADS has provided her with the honor and ample opportunities to guide her down the path toward her master's program within the Regenerative Bioscience Center.

Taylor joined the Department of Animal and Dairy Science at the University of Georgia in the summer of 2018 after completing a research position with a laboratory at Warnell which studied wildlife disease. Studying wildlife disease allowed her to gain experience with animal work and understand the ideals behind disease spread among communities and populations. The position helped her to further grasp concepts in research and earned her several research papers from the projects she worked on studying the spread of Salmonella, which further sparked her interest in health and translational research for people. A desire for experience within a



*Taylor Ellison*

laboratory setting led her to a research technician position within the Regenerative Bioscience Center in ADS, working with stem cells, translational research, and ALS disease.

After working with the Stice Lab at the RBC and immersing herself in the science carried out by multiple laboratories within the department, Taylor realized she wanted to further her goals in research and made the wonderful decision to become a master's student with ADS. She is now researching induced pluripotent stem cells and exosomes to gain a better understanding of ALS disease under the direction and guidance of Dr. Yao Yao and Dr. Steven Stice.

In addition to her research technician position and her studies as a graduate student with the Department of Animal and Dairy Science, Taylor serves as the treasurer for the Regenerative Bioscience Center Graduate Student Association. Her time with the department has been an impactful experience thus far, and Taylor hopes to utilize the skills she gains to continue working in the field of scientific research beyond graduation.



# Student Spotlight

## Matthew Holton

Matthew Holton joined the Department of Animal and Dairy Science in the fall of 2015 and is currently a graduate research assistant under Dr. Pedro Fontes. Holton has a strong agriculture background and graduated from UGA in 2019 as a double major in Animal Science and Dairy Science.

Raised in Dawsonville, Georgia, Holton joined FFA at the Dawson County High School and decided to get involved in showing dairy as his Supervised Agricultural Experience (SAE). This initial project sparked his interest in food animals and led him to the University of Georgia. Today, Holton is not only a graduate student, but also owns H2 Jersey Farm with his brother James Holton.

As an undergraduate at UGA, Holton was a member of the collegiate chapter of the Georgia Cattlemen's Association and heavily involved in the Dairy Science Club. He served as show chairman for two years and president during his senior year. Holton was also a member of the Dairy Judging Team from 2015-2017 and a member of the UGA Dairy Quiz Bowl team. As a natural consequence of his commitment to our department, Holton was selected as Outstanding Dairy Science Senior in the Spring of 2019. Additionally, he served on the Student Philanthropy Council with CAES Alumni Association.

Holton's time in his undergraduate studies in the Animal and Dairy Science department led him to many experiences and opportunities. His favorite was participating in the United States Dairy Education and Training Consortium (USDETC) in New Mexico. Holton was the first student from Georgia to attend the program. This six-week long program brings leading professors from universities across the United States and Canada to teach a selected group of students about different aspects of the dairy production with a hands-on approach.

Holton gained more hands-on experience when he completed an internship with Shamrock Animal Health Services. There he worked with a veterinarian, assisting with dairy and beefherd services in the Morgan County area. He also worked with the veterinarian and his dairy



*Matthew Holton*

equipment team with the installation of three robot milking units at Clemson University's research dairy farm.

Currently, Holton is pursuing a master's degree under the guidance of Dr. Pedro Fontes. His current research involves the use of color Doppler ultrasonography as a tool for early pregnancy diagnosis in beef cattle. Holton is using Color Doppler ultrasonography to estimate the amount of blood flow in specific parts of the reproductive tract of cows and characterizing differences between pregnant and non-pregnant cows. As part of his project, Holton is also evaluating differences in ovarian blood flow and biomarkers embryonic mortality in plasma of cows that are experiencing embryonic mortality. This is an important component of pregnancy failure in cattle and Holton's research project will generate relevant insights about this topic. Holton also is serving as a teaching assistant in ADSC 3400-Physiology of Reproduction in Domestic Animals with Dr. Jillian Bohlen. In addition to his research and teaching efforts, Holton will be assisting in Extension programs alongside Dr. Fontes.

Holton is extremely thankful for all of the industry connections and learning experiences he had and will have in the future through the Department of Animal and Dairy Science. He is excited about his research as it will be another "tool in the toolbox" for the cattle industry. Holton plans on using his education and hands-on experiences to advance his career in agriculture.

