

**CONTACT INFORMATION**

2250 Shealy Dr.  
University of Florida  
Gainesville, FL 32611 USA

*E-mail:* haipengyu@ufl.edu  
*Phone:* (352) 294-1005  
*WWW:* [uf-aiaos.github.io](https://uf-aiaos.github.io)

**RESEARCH INTERESTS**

My research interests focus on integrating high-dimensional heterogeneous data to advance genetic improvements in agriculture. Particularly, I am interested in accommodating multi-omics data into genetic evaluations of animals and plants using statistical modeling, machine learning, and computational methods. I am also interested in applying computer vision to collect real-time animal activity data and incorporating the sensor data into my research using machine learning and statistical modeling.

**EDUCATION****Virginia Polytechnic Institute and State University**, Blacksburg, Virginia USA

Ph.D., Animal and Poultry Sciences - Quantitative Genetics, May 2020

- Dissertation: “Designing and modeling high-throughput phenotyping data in quantitative genetics” [\[Virginia Tech Libraries\]](#)
- Advisor: Dr. Gota Morota

**North Dakota State University**, Fargo, North Dakota USA

M.S., Animal Sciences - Animal Breeding and Genetics, August 2016

- Thesis: “The exploration of a four-platform standing scale in the application of measuring temperament in beef cattle”
- Advisor: Dr. Lauren Hulsman Hanna

**Qingdao Agricultural University**, Qingdao, Shandong CHINA

B.S., Veterinary Medicine, July 2013

**PROFESSIONAL POSITIONS**

Department of Animal Sciences  
**University of Florida**, Gainesville, Florida USA

Assistant Professor of Artificial Intelligence in Animal Omics Sciences  
Principal Investigator  
FTE: 75% Research & 25% Teaching

08/2022 – Present

Department of Animal Science  
**Iowa State University**, Ames, Iowa USA

Post-doctoral Fellow

05/2022 – 08/2022

Computational Breeding Team  
**Inari Agriculture**, West Lafayette, Indiana USA

Computational Breeding Scientist (remote)

02/2022 – 04/2022

Department of Animal Science  
**Iowa State University**, Ames, Iowa USA

Post-doctoral Fellow

08/2020 – 02/2022

AFFILIATED  
POSITIONS

**University of Florida**, Gainesville, Florida USA

- University of Florida Genetics Institute Faculty Member

08/2022 – Present

WORK  
EXPERIENCE

Department of Animal and Poultry Sciences

**Virginia Polytechnic Institute and State University**, Blacksburg, Virginia USA

- Graduate Research Assistant

08/2018 – 05/2020

- Graduate Teaching Assistant

Spring 2019 and Spring 2020

Department of Animal Science

**University of Nebraska-Lincoln**, Lincoln, Nebraska USA

- Graduate Research Assistant

08/2016 – 08/2018

Department of Animal Sciences

**North Dakota State University**, Fargo, North Dakota USA

- Graduate Teaching Assistant

08/2015 – 05/2016

- Graduate Research Assistant

01/2015 – 05/2016

PROFESSIONAL  
SOCIETY  
MEMBERSHIPS

- American Dairy Science Association. 2021 - Present
- American Society of Animal Science. 2017 - Present

EDITORIAL  
ACTIVITIES

Guest Associate Editor

- PLOS Computational Biology

2023

Ad Hoc Journal Reviewer

- Number of manuscripts reviewed per journal: BMC Plant Biology (1), Frontiers in Animal Science (1), Frontiers in Plant Science (2), Genetics Selection Evolution (1), Journal of Animal Science (11), Journal of Dairy Science (1), Scientific Reports (1), Smart Agricultural Technology (1), The Plant Genome (1), Translational Animal Science (2)

Ad Hoc Conference Proceedings Reviewer

- U.S. Precision Livestock Farming Conference 2025
  - Number of proceeding papers reviewed (8)

## PREPRINTS

25. Watson M. T., Feldmann M., **Yu H.**, and Cheng H. End-to-end genomic prediction: direct prediction of images and text from genome-wide molecular markers. *bioRxiv*. doi: [10.1101/2025.11.03.686395](https://doi.org/10.1101/2025.11.03.686395)
  
24. Bi Y, Huang Y, **Yu H**, and Morota G. Impact of trait measurement error on quantitative genetic analysis of computer vision derived traits. *bioRxiv*. doi: [10.1101/2025.06.02.657462](https://doi.org/10.1101/2025.06.02.657462)

PEER REVIEWED  
JOURNAL ARTICLES

10 first/corresponding author and 13 co-author

- 2025
23. Wang K, Choi D, Adams D, Ahn J, Balmant K, Dias R, Messina C, Munoz-Carpena R, Whitaker VM, **Yu H**, Yu Z, Zhao C, Li C. Artificial intelligence powered plant phenomics: Progress, challenges, opportunities. *The Plant Phenome Journal*. In Press.
  
  22. Wang J, Yu Z, Chebel RC, and **Yu H**. Impact of cross-validation designs on cattle behavior prediction using machine learning and deep learning models with tri-axial accelerometer data. *Smart Agricultural Technology*. doi: [10.1016/j.atech.2025.101483](https://doi.org/10.1016/j.atech.2025.101483)
  
  21. Chebel RC, Mirzaei A, **Yu H**, Lopes G Jr, and Bisinotto RS. Early postpartum estrous characteristics: Unveiling their predictive potential for fertility in dairy cows. *Journal of Dairy Science*. doi: [10.3168/jds.2025-27175](https://doi.org/10.3168/jds.2025-27175)
  
  20. M. Anas, B. Zhao, **Yu H**, C. Dahlen, K. C. Swanson, K. A. Ringwall, and L. L. Hulsman Hanna. Multi-Trait Phenotypic Modeling Through Factor Analysis and Bayesian Network Learning to Develop Latent Reproductive, Body Conformational, and Carcass-Associated Traits in Admixed Beef Heifers. *Frontiers in Genetics*. doi: [10.3389/fgene.2025.1551967](https://doi.org/10.3389/fgene.2025.1551967)
  
  19. De Castro A, Wang J, Bonney-King JG, Morota G, Miller-Cushon EK, and **Yu H**. AnimalMotionViz: an interactive software tool for tracking and visualizing animal motion patterns using computer vision. *JDS Communications*. doi: [10.3168/jdsc.2024-0706](https://doi.org/10.3168/jdsc.2024-0706)
  
  18. Casaro S, Prim JG, Gonzalez TD, Cunha F, Silva ACM, **Yu H**, Bisinotto RS, Chebel RC, Santos JE, Nelson CD, Jeon SJ, Bicalho RC, Driver JP, and Galvão KN. Multi-omics integration and immune profiling identify possible causal networks leading to uterine microbiome dysbiosis in dairy cows that develop metritis. *Animal Microbiome*. 7:4. doi: [10.1186/s42523-024-00366-9](https://doi.org/10.1186/s42523-024-00366-9)
- 2024
17. Yan H, Jin Y, **Yu H**, Wang C, Wu B, Jone CS, Wang X, Xie Z, and Huang L. Genomic selection for agronomical phenotypes using genome-wide SNPs and SVs in pearl millet. *Theoretical and Applied Genetics*. 137:244. doi: [10.1007/s00122-024-04754-2](https://doi.org/10.1007/s00122-024-04754-2)
  
  16. **Yu H**, Fernando RL, and Dekkers JCM. Use of the linear regression method to evaluate population accuracy of predictions from non-linear models. *Frontiers in Genetics*. 15:1380643. doi: [10.3389/fgene.2024.1380643](https://doi.org/10.3389/fgene.2024.1380643)
  
  15. Ugarte Marin MB, Gingerich KN, Wang J, **Yu H**, and Miller-Cushon EK. Effects of space allowance on patterns of activity in group-housed dairy calves. *JDS Communications*. doi: [10.3168/jdsc.2023-0486](https://doi.org/10.3168/jdsc.2023-0486)
  
  14. Wang J, Xiang L, Morota G, Wickens CL, Miller-Cushon EK, Brooks SA, and **Yu H**. Technical note: ShinyAnimalCV: open-source cloud-based web application for object detection, segmentation, and three-dimensional visualization of animals using computer vision. *Journal of Animal*

*Science*. **102**:1-6. doi: [10.1093/jas/skad416](https://doi.org/10.1093/jas/skad416)

- 2023            13. Bi Y, Campos LM, Wang J, **Yu H**, Hanigan MD, and Morota G. Depth video data-enabled predictions of longitudinal dairy cow body weight using thresholding and Mask R-CNN algorithms. *Smart Agricultural Technology*. **6**:100352. doi: [10.1016/j.atech.2023.100352](https://doi.org/10.1016/j.atech.2023.100352)
- 2022            12. de Novais FJ, **Yu H**, Cesar ASM, Momen M, Poletti MD, Petry B, Mourao GB, de Almeida Regitano LC, Morota G, and Coutinho LL. Multi-omic data integration for the study of production, carcass, and meat quality traits in Nellore cattle. *Frontiers in Genetics*. **13**:948240. doi: [10.3389/fgene.2022.948240](https://doi.org/10.3389/fgene.2022.948240)
- 2021            11. Clevinger EM, Biyashev R, Lerch-Olson E, **Yu H**, Quigley C, Song Q, Dorrance AE, Robertson AE, Saghai Maroof MA. Identification of Quantitative Disease Resistance Loci towards Four Pythium Species in Soybean. *Frontiers in Plant Science*. **12**:644746. doi: [10.3389/fpls.2021.644746](https://doi.org/10.3389/fpls.2021.644746)
10. Pegolo S, **Yu H**, Morota G, Bisutti V, Rosa GJM, Bittante G, and Cecchinato A. Structural equation modelling for unravelling the multivariate genomic architecture of milk proteins in dairy cattle. *Journal of Dairy Science*. **104**:5705-5718. doi: [10.3168/jds.2020-18321](https://doi.org/10.3168/jds.2020-18321)
9. **Yu H** and Morota G. GCA: An R package for genetic connectedness analysis using pedigree and genomic data. *BMC Genomics*. **22**:119. doi: [10.1186/s12864-021-07414-7](https://doi.org/10.1186/s12864-021-07414-7)
8. **Yu H**, Lee K, and Morota G. Forecasting dynamic body weight of non-restrained pigs from images using an RGB-D sensor camera. *Translational Animal Science*. **5**:1-9. doi: [10.1093/tas/txab006](https://doi.org/10.1093/tas/txab006)
7. Momen M, Bhatta M, Hussain W, **Yu H**, and Morota G. Modeling multiple phenotypes in wheat using data-driven genomic exploratory factor analysis and Bayesian network learning. *Plant Direct*. **00**:e00304. doi: [10.1002/pld3.304](https://doi.org/10.1002/pld3.304)
- 2020            6. Amorim ST, **Yu H**, Momen M, de Albuquerque, LG, Pereira, ASC, Baldi F, and Morota G. An assessment of genomic connectedness measures in Nellore cattle. *Journal of Animal Science*. **98**:1-12. doi: [10.1093/jas/skaa289](https://doi.org/10.1093/jas/skaa289)
5. **Yu H**, Morota G, Celestino EF, Dahlen CR, Wagner SA, Riley DG, and Hanna LLH. Deciphering cattle temperament measures derived from a four-platform standing scale using genetic factor analytic modeling. *Frontiers in Genetics*. **11**:599. doi: [10.3389/fgene.2020.00599](https://doi.org/10.3389/fgene.2020.00599)
- 2019            4. Hanna LLH, Hieber JK, **Yu H**, Celestino Jr EF, Dahlen CR, Wagner SA, and Riley DG. Blood collection has negligible impact on scoring temperament in Angus-based weaned calves. *Livestock Science*. **230**:103835. doi: [10.1016/j.livsci.2019.103835](https://doi.org/10.1016/j.livsci.2019.103835)
3. **Yu H**, Campbell MT, Zhang Q, Walia H, and Morota G. Genomic Bayesian confirmatory factor analysis and Bayesian network to characterize a wide spectrum of rice phenotypes. *G3: Genes, Genomes, Genetics*. **9**:1975-1986. doi: [10.1534/g3.119.400154](https://doi.org/10.1534/g3.119.400154)
- 2018            2. **Yu H**, Spangler ML, Lewis RM, and Morota G. Do stronger measures of genomic connectedness enhance prediction accuracies across management units? *Journal of Animal Science*. **96**:4490-4500. doi: [10.1093/jas/sky316](https://doi.org/10.1093/jas/sky316)
- 2017            1. **Yu H**, Spangler ML, Lewis RM, and Morota G. Genomic relatedness strengthens genetic connectedness across management units. *G3: Genes, Genomes, Genetics*. **10**:3543-3556. doi: [10.1534/g3.117.300151](https://doi.org/10.1534/g3.117.300151)

PEER REVIEWED  
CONFERENCE  
PROCEEDINGS

- 2025            1. De Castro A, Wang J, Bonney-King JG, Morota G, Miller-Cushon EK, and **Yu H**. 2025. AnimalMotionViz: an interactive software tool for tracking and visualizing animal motion patterns using computer vision. In: *Proceedings, The 3rd US Conference on Precision Livestock Farming*. Accepted. June 2–5, Lincoln, NE.
- 2022            4. **Yu H**, van Milgen J, Knol EF, Fernando RL, and Dekkers JCM. 2022. A bayesian hierarchical model to integrate a mechanistic growth model in genomic prediction. In: *Proceedings, 12th World Congress of Genetics Applied to Livestock Production*. July 3–8, Rotterdam, The Netherlands. [\[PDF\]](#)
3. Dekkers JCM, Su H, Kramer L, and **Yu H**. 2022. An approach for the design of breeding programs using genomics. In: *Proceedings, 12th World Congress of Genetics Applied to Livestock Production*. July 3–8, Rotterdam, The Netherlands. [\[PDF\]](#)
2. Ni Z, Fernando RL, **Yu H**, Knol EF, Dekkers JCM. 2022. Genomic prediction of longitudinal body weights in pigs using a neural network. In: *Proceedings, 12th World Congress of Genetics Applied to Livestock Production*. July 3–8, Rotterdam, The Netherlands. [\[PDF\]](#)
- 2018            1. **Yu H**, Spangler ML, Lewis RM, and Morota G. 2018. Stronger measures of genomic connectedness enhance prediction accuracies across management units. In: *Proceedings, 11th World Congress of Genetics Applied to Livestock Production*. 11:406. February 11–16, Auckland, New Zealand. [\[PDF\]](#)
- BIORXIVED  
MANUSCRIPTS    1. Campbell M, **Yu H**, Momen M, and Morota G. Examining the relationships between phenotypic plasticity and local environments with genomic structural equation models. *bioRxiv*. doi: [10.1101/2019.12.11.873257](https://doi.org/10.1101/2019.12.11.873257)

INVITED  
PRESENTATIONS

- 2025            2. Pixels to genetics with AI-based digital phenotyping for animal breeding. Animal Breeding and Quantitative Genomics Seminar. Department of Animal Sciences, Purdue University. Online. May 23.
1. Comparison of Bayesian hierarchical pig growth whole-genome prediction and random regression GBLUP models for genomic evaluation of pigs. Feed Platform Meeting. Topigs Norsvin. Online. April 23.
- 2024            4. Improving livestock farming systems using artificial intelligence. 2024 Summer Research Experience Conference. Bridging the Gap: Training Next Generation Scientists Using Animal Health Technologies. North Dakota State University, Fargo, ND. July 30.
3. A Method to Compute Genomic Window Variances That Are Invariant to Dimension-Reducing Transformations between Equivalent Multiple-Regression Models. Feed Platform Meeting. Topigs Norsvin. Online. April 18.

2. ShinyAnimalCV: open-source cloud-based web application for object detection, segmentation, and three-dimensional visualization of animals using computer vision. In-Service Training- AI Essentials for Extension. Gulf Coast Research and Education Center, Wimauma, FL. April 9.

1. A Method to Compute Genomic Window Variances That Are Invariant to Dimension-Reducing Transformations between Equivalent Multiple-Regression Models. Plant & Animal Genome Conference / PAG 31. Town and Country Hotel, San Diego, CA. January 12–17. [\[Abstract\]](#)

2023

8. Development of user-friendly open-source computer vision tools for precision livestock farming. 2023 National Swine Improvement Federation. Hilton St. Louis at the Ballpark, St. Louis, MO. October 24–26.

7. The application of AI for precision livestock farming. AI in Agriculture: From Lab to Table, Applications of AI Models Across the Agricultural Value Chain. UF AI Days. University of Florida, Gainesville, FL. October 18.

6. Development of user-friendly open-source computer vision tools for precision livestock farming. UF/IFAS AI seminars. University of Florida, Gainesville, FL. September 29.

5. Bayesian hierarchical inference to integrate high-dimensional growth and composition traits into genomic evaluation of pigs. Feed Platform Meeting. Topigs Norsvin. Online. April 20.

4. Bayesian hierarchical inference to integrate high-dimensional growth and composition traits into genomic evaluation of pigs. Genomic Selection and Genome-Wide Association Studies. Plant & Animal Genome Conference / PAG 30. Town and Country Hotel, San Diego, CA. January 13–18. [\[Abstract\]](#)

2022

3. Integrating high-dimensional heterogeneous omics data to advance animal agriculture. Animal Science Seminar. Department of Animal Science. University of California, Davis, CA. November 21.

2. Integrating high-dimensional heterogeneous omics data to advance animal agriculture using artificial intelligence. UF/IFAS Artificial Intelligence Summit. University of Florida, Gainesville, FL. June 21.

1. Bayesian hierarchical inference to integrate a nutritional growth model into genomic evaluation of pigs. Feed Platform Meeting. Topigs Norsvin. Online. April 21.

CONTRIBUTED  
CONFERENCE  
PRESENTATIONS

(\* denotes presenting author)

2025

13. Wang J, De Castro A, Borsatto LB, Guo Y, Primo VB, Bernardino ABM, Morota G, Chebel RC, **Yu H\***. Late-Breaking: Transfer Learning for Improving Dairy Cattle Body Weight Prediction in Small Farms Using Depth Images and Point Cloud Data. ASAS-CSAS Annual Meeting. Hollywood, FL. July 6–10.

12. Godinho RM\*, **Yu H**, Verschuren L, Knol EF, Fernando R, Dekkers J, Grindflek E. Whole genome prediction of the onset of puberty in a pig growth model based on body weight and feed intake data from boar stations using a Bayesian hierarchical model. Hollywood, FL. July 6–10.

- 11.** Infante-Cangrejo JL\*, Wang J, Heredia DC, Lopez-Duarte MC, Venturini M, **Yu H**, Gonella-Diaza AM. Predicting active and non-active corpus luteum in early pregnancy using computer vision and machine learning on Doppler ultrasound images in beef cattle. ASAS-CSAS Annual Meeting. Hollywood, FL. July 6–10.
- 10.** De Castro A\*, Wang J, Bonney-King JG, Morota G, Miller-Cushon EK, and **Yu H**. AnimalMotionViz: an interactive software tool for tracking and visualizing animal motion patterns using computer vision. The 3rd US Conference on Precision Livestock Farming. Lincoln, NE. June 2–5.
- 9.** Ali I\*, **Yu H**, Wang J, Smith T, Vann RC, Powell JG, Thorne JW, van Marle-Köster E, Bauer LW, Rouquette MM, Riley DG. Using two-dimensional facial images of Hereford crossbred cattle as a source of computable trait for facial patterns: from images to biological trait. ASAS 2025 Southern/Western Section Joint Meeting. Arlington, Texas. April 5–8. [\[Abstract\]](#)
- 2023**
- 8.** Wang J, Hu Y, Xiang L, Morota G, Brooks SA, Wickens CL, Miller-Cushon EK, **Yu H\***. ShinyAnimalCV: interactive web application for object detection and three-dimensional visualization of animals using computer vision. ASAS-CSAS-SSASAS Annual Meeting. Albuquerque, NM. Jul 16–20. [\[Abstract\]](#)
- 2021**
- 7.** **Yu H\***, Milgen J, Knol E, Fernando R, Dekkers JC. A Bayesian hierarchical model to integrate growth models into genomic evaluation of pigs. ASAS-CSAS-SSASAS Annual Meeting and Trade Show. Online. July 14–23. [\[Abstract\]](#)
- 2020**
- 6.** **Yu H\***, Lee K, Morota G. Development of image analysis pipeline to predict body weight in pigs. EAAP Annual Meeting 2020. Online. December 3. [\[Abstract\]](#)
- 5.** **Yu H\***, Lee K, Morota G. Development of image analysis pipeline to predict body weight in pigs. ASAS-CSAS-WSASAS Virtual Annual Meeting and Trade Show. Online. July 19–23. [\[Abstract\]](#)
- 2019**
- 4.** **Yu H\*** and Morota G. Precision agriculture on cattle temperament: Utilizing factor analysis and multi-trait modeling to characterize a four-platform standing scale. NCERA-225 Annual Meeting. Implementation and Strategies for National Beef Cattle Genetic Evaluation. Blacksburg, VA. October 10–11.
- 2018**
- 3.** **Yu H\***, Spangler ML, Lewis RM, Morota G. An assessment of genomic relatedness across management units. ADSA-ASAS 2018 Midwest Meeting. Omaha, NE. March 12–14. [\[Abstract\]](#)
- 2017**
- 2.** **Yu H\*** and Morota G. Stronger measures of genomic connectedness enhance prediction accuracies across management units. NCERA-225 Annual Meeting. Implementation and Strategies for National Beef Cattle Genetic Evaluation. Stanley Stout Livestock Marketing Center, Manhattan, KS. October 18–19.
- 1.** **Yu H\***, Spangler ML, Lewis RM, Morota G. Genomic relatedness strengthens genetic connectedness across management units. ASAS-CSAS Annual Meeting and Trade Show. Baltimore, MD. July 8–12. [\[Abstract\]](#)

- 2024
  - Wise Use of Generative AI in Research. Animal Sciences Graduate Student Association seminar. Department of Animal Sciences, University of Florida. March 20.
- 2023
  - Development of User-Friendly Open-Source Computer Vision Tools for Animal Science Research. Animal Molecular & Cellular Biology seminar. Department of Animal Sciences, University of Florida. August 25.
  - Animal Genetics and Genomics seminar. Department of Animal Sciences, University of Florida. April 25.
- 2021
  - Animal Breeding and Genetics seminar. Department of Animal Science, Iowa State University. September 3.
- 2020
  - Animal Breeding and Genetics Graduate Student Organization seminar. Department of Animal Science, Iowa State University. October 2.
  - Animal Breeding and Genetics seminar. Department of Animal Science, Iowa State University. September 18.
  - Ph.D. Thesis Defense. Department of Animal and Poultry Sciences, Virginia Polytechnic Institute and State University. March 18.
- 2019
  - Ninth Annual Animal and Poultry Sciences Research Symposium. Department of Animal and Poultry Sciences, Virginia Polytechnic Institute and State University. May 21.
  - The Reproductive Biology Club. Department of Animal and Poultry Sciences, Virginia Polytechnic Institute and State University. April 19.
- 2018
  - Animal Breeding and Genetics seminar. Department of Animal Science, University of Nebraska-Lincoln. February 28.
- 2017
  - Animal Breeding and Genetics Seminars. Department of Animal Sciences, University of Nebraska-Lincoln. September 29.
- 2016
  - M.S. Thesis Defense. Department of Animal Sciences, North Dakota State University. May 17.

## TEACHING

**University of Florida**, Gainesville, Florida, USA

### Lead Instructor

- ANS 6932: R Programming in Animal Data Science Spring 2025  
17 participants
- ANS 6932 Digital Data Analysis for Precision Livestock Farming Fall 2024  
8 participants
- ANS 6939 Artificial Intelligence in Animal Sciences Journal Club Spring 2024  
8 participants
- ANS 6932 Digital Data Analysis for Precision Livestock Farming Fall 2023  
6 participants

**Virginia Polytechnic Institute and State University**, Blacksburg, Virginia, USA

Guest Instructor

- GWAS Workshop [[Slides](#)]

Summer 2019

Graduate Teaching Assistant

- APSC 5984/20816: Complex Trait Genomics [[WWW](#)]
- ALS 3104: Animal Breeding and Genetics

Spring 2020

Spring 2019

Tutorials

- Factor Analytic Model [[WWW](#)]
- Gaussian Bayesian Network [[WWW](#)]
- Structural Equation Model GWAS [[WWW](#)]

**University of Nebraska-Lincoln**, Lincoln, Nebraska, USA

Guest Instructor

- ASCI 944 / STAT 844 Quantitative Methods for Genomics of Complex Traits  
[[Slides](#)] [[WWW](#)]

Spring 2018

**North Dakota State University**, Fargo, North Dakota USA

Graduate Teaching Assistant

- ANSC 357: Animal Genetics
- AGRI 189: Skills for Academic Success

Spring 2016

Fall 2015

**SHORT COURSES**

**Florida ASABE Continuing Education Program**, Jensen Beach, Florida, USA

Lead Instructor

Building Computer Vision Interactive Web Applications for Animal Detection, Segmentation, and  
3D Visualization

June 12, 2024

**RESEARCH SUPPORT**

External Funding

- Animal Health and Production and Animal Products: Animal Breeding, Genetics, and Genomics  
- \$93,785.00  
PI: Jack Dekkers  
USDA-NIFA (Subaward from Principal Grant)  
May, 2023 - May, 2024  
Proposal: Integration Of Biological Models In Genomic Evaluation: Pig-Growth-Model Whole  
Genome Prediction  
Role: Subaward Principal Investigator

Internal Funding

- 2023 CALS Instructional Improvement Mini Grant - \$2,293.99  
PI: Justin Callaham  
UF  
Proposal: Micro-GPU's for Use in AI in Animal Sciences Courses  
Role: Co-Principal Investigator

- Launching Innovative Faculty Teams in AI (LIFT AI) - \$24,987.00 UF  
PI: Huiping Yang September, 2022 - December, 2023  
Proposal: Integrating High-Throughput Phenotyping into Genomic Evaluation to Advance Northern Quahogs Mercenaria mercenaria Breeding  
Role: Co-Principal Investigator
- Launching Innovative Faculty Teams in AI (LIFT AI) - \$24,025.00 UF  
PI: Jeongim Kim September, 2022 - December, 2023  
Proposal: Dissecting genetic controls of plant root and shoot architecture using AI methods  
Role: Co-Principal Investigator

**ADVISEES AND  
TRAINEES**

Ph.D. students

- |                                   |           |
|-----------------------------------|-----------|
| 2. Angelo Legarda De Castro [WWW] | 08/2024 – |
| 1. Jin Wang [WWW]                 | 01/2023 – |

M.S. students

- |                     |           |
|---------------------|-----------|
| 1. Yuxi Zhang [WWW] | 08/2024 – |
|---------------------|-----------|

Visiting B.S. students

- |  |                   |
|--|-------------------|
| 1. Lucas Basolli Borsatto, University of São Paulo [WWW] | 08/2024 – 11/2024 |
|--|-------------------|

Research interns

- |   |                   |
|---|-------------------|
| 5. Yuechen Guo, Department of Electrical and Computer Engineering, UF | 11/2023 –         |
| 4. Yu Hu, Department of Electrical and Computer Engineering, UF       | 03/2023 – 10/2023 |
| 3. Fan Zhao, Department of Electrical and Computer Engineering, UF    | 11/2022 – 07/2023 |
| 2. Yugang Duan, Department of Electrical and Computer Engineering, UF | 12/2022 – 05/2023 |
| 1. Yue Li, Department of Electrical and Computer Engineering, UF      | 09/2022 – 12/22   |

**THESIS  
COMMITTEES**

Ph.D. Thesis Committees

- |   |       |
|---|-------|
| 5. Ana Margarita Arias Esquivel<br>Department of Animal Sciences, University of Florida<br>Major advisor: Carissa Wickens         | 2025– |
| 4. Carlos Angelino Nino De Guzman Cerna<br>Department of Animal Sciences, University of Florida<br>Major advisor: Albert De Vries | 2024– |

3. Ali Imtiaz	2024–
Department of Animal Sciences, North Dakota State University	
Major advisor: Lauren L. Hulsman Hanna	
2. Maria Belen Ugarte Marin	2023–
Department of Large Animal Clinical Sciences, University of Florida	
Major advisor: Rafael Sisconeto Bisinotto	
1. Gabriel Antonio Zayas Santiago	2025
Department of Animal Sciences, University of Florida	
Major advisor: Raluca Mateescu	

#### M.S. Thesis Committees

1. Anna Hanson	2024
Department of Animal Sciences, University of Florida	
Major advisor: Albert De Vries	

VISITORS HOSTED	• Dr. Jack Dekkers, Iowa State University	April, 2025
	• Dr. Rohan Fernando, Iowa State University	April, 2024

#### SERVICE ACTIVITIES

##### Ad hoc review of external proposals

• USDA NIFA Agriculture and Food Research Initiative	2024
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##### Multistate research activities

• NRSP8: Genomic Capacity: Building Applied Genomic Capacity for Animal Industries	2025–Present
• NC1211: Precision Management of Animals for Improved Care, Health, and Welfare of Livestock and Poultry University of Florida representative	2023–Present

##### University

• UF/IFAS Faculty AI Working Group (FAWG) Committee	August, 2023 – August, 2025
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#### SOFTWARE DEVELOPMENTS

Computer vision software

- ShinyAnimalCV - <https://github.com/uf-aiaos/ShinyAnimalCV>
- AnimalMotionViz - <https://github.com/uf-aiaos/AnimalMotionViz>

R package

- GCA - <https://github.com/uf-aiaos/GCA>

PARTICIPATION IN  
MEETINGS,  
SYMPOSIUMS, AND  
WORKSHOPS

- 2025
- US National Animal Genome Research Program (NRSP8) Summer Workshop. Lincoln, NE. June 6–7.
  - 3rd U.S. Precision Livestock Farming Conference (USPLF 2025). Embassy Suites, Lincoln, NE. June 2–5.
  - AGBT Ag 2025 meeting. Caribe Royale Orlando, Orlando, FL. March 30–April 2.
- 2024
- 2024 ADSA Annual Meeting. Palm Beach County Convention Center, West Palm Beach, FL. June 16–19.
- 2023
- 2nd U.S. Precision Livestock Farming Conference (USPLF 2023). University of Tennessee Conference Center, Knoxville, TN. May 21–24.
  - AI in Agriculture: Innovation and Discovery to Equitably Meet Producer Needs and Perceptions. Marriott Orlando Airport Lakeside, Orlando, FL. April 17–19.
  - Leveraging High-Throughput Phenotyping Techniques to Study Complex Traits. Quantitative Genetics and Genomics Gordon Research Conference. Four Points Sheraton/Holiday Inn Express, Ventura, CA. February 12–17.
- 2021
- Poultry Breeder's Roundtable & National Swine Improvement Federation Joint Meeting. Marriott St. Louis Grand, St. Louis, MO. November 30–December 2.
- 2020
- The 6th International Conference of Quantitative Genetics. Online. November 2–12.
  - The Plant and Animal Genome XXVIII Conference. Town and Country Hotel, San Diego, CA. January 11–15.
- 2015
- NCERA-225 Annual Meeting. Implementation and Strategies for National Beef Cattle Genetic Evaluation. North Dakota State University, ND. October 22–23.
  - Graduate Learning Conference for College Teaching. North Dakota State University, ND. August 17–18.
  - WERA-1: Beef Cattle Breeding in the Western Region. Miles City, MT. May 19–20.
  - ADSA-ASAS Midwest Meeting. Des Moines, IA. March 15–18.

HONORS/ AWARDS

- 2020
- The 6th International Conference of Quantitative Genetics US-Based Early Career Researcher Scholarship. Online. November.

- 2019
- 24th Summer Institute in Statistical Genetics (SISG) Scholarship, University of Washington, Seattle, WA, July.
  - Ninth Annual Animal and Poultry Sciences Research Symposium Travel Award \$400, Virginia Polytechnic Institute and State University, May.
- 2015
- Frank Bain Graduate Student Scholarship \$1,650, North Dakota State University, Spring.