
CONTACT INFORMATION	239B Kildee Hall Iowa State University Ames, Iowa 50011 USA	<i>E-mail:</i> hpyu@iastate.edu <i>Phone:</i> (701) 730-1368 <i>WWW:</i> haipengu.github.io
RESEARCH INTERESTS	My overarching research focus is to understand the genotype-phenotype map in animals and plants using computational and statistical genetics. Particularly, I am seeking to develop and apply statistical and computational methods to the whole-genome prediction of complex traits, genome-wide association analysis, and image-derived high-throughput phenotyping data analysis.	
EDUCATION	Virginia Polytechnic Institute and State University , Blacksburg, Virginia USA Ph.D., Animal and Poultry Sciences - Quantitative Genetics, May 2020 <ul style="list-style-type: none">• 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 <ul style="list-style-type: none">• 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	Iowa State University , Ames, Iowa USA Post-doctoral Fellow <ul style="list-style-type: none">• Advisor: Dr. Jack Dekkers	08/2020 - Present
WORK EXPERIENCE	Department of Animal and Poultry Sciences Virginia Polytechnic Institute and State University , Blacksburg, Virginia USA <ul style="list-style-type: none">• Graduate Research Assistant• Graduate Teaching Assistant Department of Animal Science University of Nebraska-Lincoln , Lincoln, Nebraska USA <ul style="list-style-type: none">• Graduate Research Assistant Department of Animal Sciences North Dakota State University , Fargo, North Dakota USA	08/2018 - 05/2020 Spring 2019 and Spring 2020 08/2016 - 08/2018

	<ul style="list-style-type: none"> • Graduate Teaching Assistant 	08/2015 - 05/2016
	<ul style="list-style-type: none"> • Graduate Research Assistant 	01/2015 - 05/2016
PROFESSIONAL SOCIETY MEMBERSHIPS	<ul style="list-style-type: none"> • American Dairy Science Association. 2021 - Present • American Society of Animal Science. 2017 - Present 	
EDITORIAL ACTIVITIES	<p><u>Reviewed for</u></p> <ul style="list-style-type: none"> • Scientific Reports (1) 	
PREPRINTS	<p>12. Campbell M, <u>Yu H</u>, Momen M, and Morota G. Examining the relationships between phenotypic plasticity and local environments with genomic structural equation models. <i>bioRxiv</i>. doi: 10.1101/2019.12.11.873257</p>	
PEER REVIEWED JOURNAL PAPERS	6 first author and 5 co-author	
2021	<p>11. Clevinger EM, Biyashev R, Lerch-Olson E, <u>Yu H</u>, Quigley C, Song Q, Dorrance AE, Robertson AE, and Maroof S. Identification of Quantitative Disease Resistance Loci towards Four Pythium Species in Soybean. <i>Frontiers in Plant Science</i>. doi: 10.3389/fpls.2021.644746</p> <p>10. Pegolo S, <u>Yu H</u>, 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. <i>Journal of Dairy Science</i>. Early view. doi: 10.3168/jds.2020-18321</p> <p>9. <u>Yu H</u> and Morota G. GCA: An R package for genetic connectedness analysis using pedigree and genomic data. <i>BMC Genomics</i>. 22:119. doi: 10.1186/s12864-021-07414-7</p> <p>8. <u>Yu H</u>, Lee K, and Morota G. Forecasting dynamic body weight of non-restrained pigs from images using an RGB-D sensor camera. <i>Translational Animal Science</i>. 5:1-9. doi: 10.1093/tas/txab006</p> <p>7. Momen M, Bhatta M, Hussain W, <u>Yu H</u>, and Morota G. Modeling multiple phenotypes in wheat using data-driven genomic exploratory factor analysis and Bayesian network learning. <i>Plant Direct</i>. 00:e00304. doi: 10.1002/pld3.304</p>	
2020	<p>6. Amorim ST, <u>Yu H</u>, Momen M, de Albuquerque, LG, Pereira, ASC, Baldi F, and Morota G. An assessment of genomic connectedness measures in Nellore cattle. <i>Journal of Animal Science</i>. 98:1-12. doi: 10.1093/jas/skaa289</p>	

- 2019 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. 2019. 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)
- 2019 3. **Yu H**, Campbell MT, Zhang Q, Walia H, and Morota G. 2019. 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. 2018. 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. 2017. 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).

PAPERS IN PROCEEDINGS

1 first author

- 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. [\[PDF\]](#)

CONTRIBUTED PRESENTATIONS

- 2021 7. 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.
- 2020 6. Development of image analysis pipeline to predict body weight in pigs. EAAP Annual Meeting 2020. Online. December 3.
- 2020 5. Development of image analysis pipeline to predict body weight in pigs. ASAS-CSAS-WSASAS Virtual Annual Meeting and Trade Show. Online. July 19-23.
- 2019 4. 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. An assessment of genomic relatedness across management units. ADSA-ASAS 2018 Midwest Meeting. Omaha, NE. March 12-14.

- 2017
2. 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. Genomic relatedness strengthens genetic connectedness across management units. ASAS-CSAS Annual Meeting and Trade Show. Baltimore, MD. July 8-12.

INTRAMURAL SEMINARS

- 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 seminar. Department of Animal Science, University of Nebraska-Lincoln. February 14.
 - 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

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](#)] **Spring 2020**
- ALS 3104: Animal Breeding and Genetics **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 **Spring 2018**
[Slides] [WWW]

North Dakota State University, Fargo, North Dakota USA

Graduate Teaching Assistant

- ANSC 357: Animal Genetics **Spring 2016**
- AGRI 189: Skills for Academic Success **Fall 2015**

SOFTWARE DEVELOPMENTS

- R package
- GCA - <https://github.com/HaipengU/GCA>

PARTICIPATION IN MEETINGS, SYMPOSIUMS, AND WORKSHOPS

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| 2020 | <ul style="list-style-type: none"> • 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 | <ul style="list-style-type: none"> • 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

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| 2020 | <ul style="list-style-type: none"> • The 6th International Conference of Quantitative Genetics US-Based Early Career Researcher Scholarship. Online. November. |
| 2019 | <ul style="list-style-type: none"> • 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.

2009-2013 • Outstanding Undergraduate Scholarship, Qingdao Agricultural University, China.

ADDITIONAL
TRAINING

2019 • Deep Learning for Computer Vision Workshop, Virginia Tech, VA, September 6.

• 24th Summer Institute in Statistical Genetics (SISG), University of Washington, Seattle, WA, July 17-24.

2018 • Programming and Computer Algorithms in Animal Breeding With Focus on Genomic Selection and Single-Step GBLUP, University of Georgia, GA, May 7-25.

2017 • Introduction to Graphical Models With Applications to Quantitative Genetics and Genomics, Iowa State University, IA, June 19-23.

• Software Carpentry Workshop. University of Nebraska-Lincoln, NE, January 5-6.