

CONTACT
INFORMATION

239B Kildee Hall
Iowa State University
Ames, Iowa 50011 USA

E-mail: hpyu@iastate.edu
Phone: (701) 730-1368
WWW: haipengu.github.io

RESEARCH
INTERESTS

My overarching research interest is to understand the genotype-phenotype map in animals and plants using computational and statistical genetics. Particularly, I am interested in developing and applying statistical methods to the whole-genome prediction of complex traits, genome-wide association analysis, high-throughput phenotyping analysis, and image analysis.

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 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 Science

Iowa State University, Ames, Iowa USA

- Post-doctoral Fellow

08/2020 - 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 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

- The American Society of Animal Science. 2017 - Present

PREPRINTS

9. 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. *bioRxiv*. doi: [10.1101/2020.09.03.282335](https://doi.org/10.1101/2020.09.03.282335)
8. 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)
7. **Yu H** and Morota G. GCA: An R package for genetic connectedness analysis using pedigree and genomic data. *bioRxiv*. doi: [10.1101/696419](https://doi.org/10.1101/696419)

PEER REVIEWED JOURNAL PAPERS

4 first author and 2 co-author

- 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*. Early view. 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*. 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)
 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

- 2020 5. Development of image analysis pipeline to predict body weight in pigs. ASAS-CSAS-WSASAS Virtual Annual Meeting and Trade Show. 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. [\[Abstract\]](#)
- 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 [[Slide](#)] **Summer 2019**

Graduate Teaching Assistant

- APSC 5984/20816: Complex Trait Genomics [[WWW](#)] **Spring 2020**
- ALS 3104: Animal Breeding and Genetics **Spring 2019**

University of Nebraska-Lincoln, Lincoln, Nebraska, USA

Guest Instructor

- ASCI 944 / STAT 844 Quantitative Methods for Genomics of Complex Traits [[Slide](#)] [[R](#)] **Spring 2018**

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**

OSS CONTRIBUTIONS

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

PARTICIPATION IN MEETINGS, SYMPOSIUMS, AND WORKSHOPS

- 2020
 - The 2020 PigGen Canada-LSARP Virtual Workshop section II. Online. October 21.
 - The 2020 PigGen Canada-LSARP Virtual Workshop section I. Online. October 1.
- 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.
- Midwest Meeting of American Society of Animal Science. Des Moines, IA. March 15-18.

HONORS/ AWARDS

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| 2019 | <ul style="list-style-type: none"> • 24th Summer Institute in Statistical Genetics (SISG) Scholarship, University of Washington, July. • Ninth Annual Animal and Poultry Sciences Research Symposium Travel Award \$400, Virginia Polytechnic Institute and State University, May. |
| 2015 | <ul style="list-style-type: none"> • Frank Bain Graduate Student Scholarship \$1,650, North Dakota State University, Spring. |
| 2009-2013 | <ul style="list-style-type: none"> • Outstanding Undergraduate Scholarship, Qingdao Agricultural University, China. |

ADDITIONAL TRAINING

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| 2019 | <ul style="list-style-type: none"> • 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 | <ul style="list-style-type: none"> • Programming and Computer Algorithms in Animal Breeding With Focus on Genomic Selection and Single-Step GBLUP, University of Georgia, GA, May 7-25. |
| 2017 | <ul style="list-style-type: none"> • 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. |

REFERENCES

References and additional information available upon request.