Haipeng Yu **September 2020**

CONTACT INFORMATION

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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. GCA: Modeling multiple phenotypes in wheat using data-driven genomic exploratory factor analysis and Bayesian network learning. *bioRxiv*. doi: 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

7. **Yu H** and Morota G. GCA: An R package for genetic connectedness analysis using pedigree and genomic data. *bioRxiv*. doi: 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

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 (In press)*. doi: 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

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

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

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.

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

2019

- Genetic connectedness across management units. Ninth Annual Animal and Poultry Sciences Research Symposium. Department of Animal and Poultry Sciences, Virginia Polytechnic Institute and State University. May 21.
- Genetic connectedness across management units. The Reproductive Biology Club. Department of Animal and Poultry Sciences, Virginia Polytechnic Institute and State University. April 19.

2018

- Genomic factor analytic and graphical models to characterize a wide spectrum of rice phenotypes. Animal Breeding and Genetics seminar. Department of Animal Science, University of Nebraska-Lincoln. February 28.

2017

- Genomic relatedness strengthens genetic connectedness across management units. Animal Breeding and Genetics seminar. Department of Animal Science, University of Nebraska-Lincoln. February 14.
- The exploration of a four-platform standing scale in the application of measuring temperament in beef cattle. 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

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

2019
- 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
- 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.

References

References and additional information available upon request.