Haipeng Yu **April 2020**

CONTACT INFORMATION

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RESEARCH INTERESTS

My overarching research interest is to leverage statistics, machine learning, and bioinformatics to better understand the genotype-phenotype map in animal and plant 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

WORK EXPERIENCE

Department of Animal and Poultry Sciences

Virginia Polytechnic Institute and State University, Blacksburg, Virginia USA

- Graduate Research Assistant **08/2018 - Present**
- 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

7. **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. *bioRxiv*. doi: 10.1101/2020.01.20.913343

6. 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

5. **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

3 first author and 1 co-author

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

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.