

CONTACT  
INFORMATION

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RESEARCH  
INTERESTS

I am a Ph.D. student in animal science at Virginia Tech. My research interests focus on incorporating statistics, machine learning, and bioinformatics into the study of animal and plant genetics in the omics era. I am also interested in the application of computer vision systems for high-throughput phenotyping in precision agriculture.

CURRENT  
RESEARCH  
PROJECTS**Quantitative Genetics**

- Complex trait prediction using metabolomics and hyperspectral image data in rice
- Rice phenotypic plasticity analysis using a random regression model

**Precision Livestock Farming**

- Estimate dairy cow body weight and body condition score via automated computer vision systems

## EDUCATION

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

Ph.D., Animal Sciences, August 2021 - present

- Advisor: Dr. Gota Morota

**University of California Davis**, Davis, California USA

M.S., Animal Biology, September 2021

- Thesis: “Longitudinal Analysis of CD4 and CD8 T Cell Receptor Repertoires Associated with Newcastle Disease Virus Infection in Layer Birds.”
- Advisor: Dr. Huaijun Zhou
- Committee: Drs. Rodrigo A Gallardo and Charles L. Bevins
- Available at [UC davis Libraries](#).

**Chinese Academy of Agricultural Sciences**, Beijing, Beijing China

M.S., Animal Nutrition and Feed Science, July 2017

- Thesis: “Effects of Dietary Threonine Level on Traits of Peking Ducks from Hatch to 21 Days.”
- Advisor: Dr. Benhai Xiong
- Committees: Drs. Shuisheng Hou, Jilan Chen, Taozhen Jiang and Yu Chen

**Shandong Agricultural University**, Taian, Shandong China

B.S., Animal Science, July 2014

- Thesis: “Effect of Rumen Fluid Osmotic Pressure on Absorption of VFAs in Rumen Epithelium of Sheep.”
- Advisor: Dr. Yunliang Jiang

## HONOR AND AWARDS

- 2022
- Modern Programming in Genome to Phenome Scholarship (\$1500), University of California, Davis, CA, August 1-5.
  - 27th Summer Institute in Statistical Genetics (SISG) Scholarship, University of Washington, Seattle, WA, July 18-27.
- 2020
- UC Davis Henry A. Jastro Graduate Research Awards
  - UC Davis Animal Biology Graduate Program Fellowship
- 2016
- Academic Scholarship of Chinese Academy of Agricultural Sciences
- 2015
- Academic Scholarship of Chinese Academy of Agricultural Sciences
  - Course Excellence Award of Chinese Academy of Agricultural Sciences
- 2014
- Academic Scholarship of Chinese Academy of Agricultural Sciences
  - Outstanding Graduate of Shandong Agricultural University
- 2013
- Excellent Student Scholarship of Shandong Agricultural University
  - Science and Technology Innovation Scholarship of Shandong Agricultural University
- 2012
- Excellent Student Scholarship of Shandong Agricultural University
- 2011
- Excellent Student Scholarship of Shandong Agricultural University

## PEER REVIEWED RESEARCH JOURNAL ARTICLES

- 2023
1. Kadlec R, Indest S, Castro K, Waqar S, Campos LM, Amorim ST, **Bi Y**, Hanigan MD, and Morota G. 2023. Automated acquisition of top-view dairy cow depth image data using an RGB-D sensor camera. *Translational Animal Science*. Early view. doi: [10.1093/tas/txac163](https://doi.org/10.1093/tas/txac163)
- 2017
5. **Ye Bi**, Xuemei Nan, Shanshan Zheng, Linshu Jiang, Benhai Xiong. Effects of dietary threonine and immune stress on growth performance, carcass trait, serum immune parameters, and intestinal muc2 and NF-kb gene expression in Pekin ducks from hatch to 21 days. *Poultry Science*, 2017, 97(1): 177-187. doi: [10.3382/ps/pex283](https://doi.org/10.3382/ps/pex283)
  4. **Ye Bi**, Hairui Xin, Xiaohua Pan, Benhai Xiong. Effects of dietary threonine level on growth performance, carcass traits, immune function and serum hormone of Peking ducklings. *Chinese Journal of Animal Nutrition*, 2017, 29(6): 1913-1920. doi: [link](#)
  3. **Ye Bi**, Xiaohua Pan, Hairui Xin, Benhai Xiong. Research progress of the influence of threonine on poultry nutrition[J]. *China Animal Husbandry and Veterinary Medicine*, 2017, 44(8): 2326-2332. doi: [link](#)

2016

2. Hairui Xin, Xiaohua Pan, Liang Yang, **Ye Bi**, Benhai Xiong. Effects of Light Intensity on Performance, Carcass Performance and Meat Quality of Peking Ducks. *Chinese Journal of Animal Nutrition*, 2016, 28(4): 1076-1083. doi: [link](#)

1. Hairui Xin, Xiaohua Pan, **Ye Bi**, Benhai Xiong, Linshu Jiang. Effects of Lighting Regimes on Production Performance, Carcass Performance and Anti-Oxidant Capacity of the Blood in Peking Ducks. *Journal of Integrative Agriculture*, 2016, 49(23): 4638-4645. doi: [link](#)

#### PREPRINT

2022

1. Sabag I, **Bi Y**, Peleg Z, and Morota G. Multi-environment analysis enhances genomic prediction accuracy of agronomic traits in sesame. *bioRxiv*. doi: [10.1101/2022.11.26.518043](#)
2. **Bi Y**, Yassue RM, Paul P, Dhatt BK, Sandhu J, Do TP, Walia H, Obata T, and Morota G. Evaluating metabolic and genomic data for predicting grain traits under high night temperature stress in rice. *bioRxiv*. doi:[10.1101/2022.10.27.514071](#)

#### INTRAMURAL SEMINARS

2022

2. **Ye Bi**. Utility of Metabolites and Single-Nucleotide Polymorphisms for Classification of High Night Temperature Stress Conditions and Prediction of Grain Size Related Traits in Rice. Virginia Polytechnic Institute and State University, Blacksburg, VA, Sep 09.
1. **Ye Bi**. Evaluating Dairy Cow Body Condition Scores Using Automated Computer Vision Systems. Department of Animal and Poultry Sciences. Virginia Polytechnic Institute and State University, Blacksburg, VA. May 19.

#### INVITED PRESENTATIONS

2022

1. **Ye Bi**. Evaluating Dairy Cow Body Condition Scores Using Automated Computer Vision Systems. Department of Animal Science. Shandong Agricultural University. Online. July 22.

#### POSTER

2022

2. **Ye Bi**. Development of Automated Computer Vision Systems for Evaluating Dairy Cow Body Weight and Body Condition Scores. ASAS-CSAS 2022 annual meeting, Oklahoma City, Oklahoma. Poster Presentation. June 26-30.
1. **Ye Bi**. Evaluating Dairy Cow Body Condition Scores Using Automated Computer Vision Systems. Virginia Tech Center for Advanced Innovation in Agriculture (CAIA) Big Event. Poster Presentation. March 28.

PEER REVIEWED  
CONFERENCE  
PROCEEDINGS

- 2016
2. **Ye Bi**, Hairui Xin, Benhai Xiong. Effects of dietary threonine level on traits of Peking ducks from hatch to 21 days. *The 12th National Conference about Animal Nutrition of Animal Nutrition Branch of Chinese Association of Animal Science and Veterinary Medicine*. doi: [link](#)
  1. Hairui Xin, **Ye Bi**, Benhai Xiong. Effects of Lighting Regimes on Blood Calcium Phosphate Level and Anti-Oxidant Capacity of the Blood in Peking Ducks. *The 12th National Conference about Animal Nutrition of Animal Nutrition Branch of Chinese Association of Animal Science and Veterinary Medicine*. doi: [link](#)

EDITORIAL  
ACTIVITIES

Ad Hoc Reviewer

- Number of manuscripts reviewed per journal: Journal of Animal Science (4), Scientia Agricola(1).

TEACHING

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

Teaching Assistant

- ALS 3104 Animal Breeding and Genetics **Spring/2022**
- ALS 3104 Animal Breeding and Genetics **Spring/2023**

**University of California Davis**, Davis, California, USA

Teaching Assistant

- ANS150 Animal Health and Disease **Spring/2020**
- ABI102 Animal Biochemistry and Metabolism **Fall/2019**

ACTIVITY

- Virginia Tech Center for Advanced Innovation in Agriculture(CAIA) Graduate Student Affiliate Group Member **October/2021 - present**
- The 10th National Congress of Animal Nutrition Branch of Chinese Association of Animal Science and Veterinary Medicine (CAAV) and the 12th Animal Nutrition Symposium member **October/2016 - September/2017**
- The XXV World's Poultry Congress member **September/2016 - August/2017**
- The Branch of Animal Information, Chinese Association of Animal Science and Veterinary Medicine the 10th Symposium member **July/2015 - June/2016**

ADDITIONAL  
TRAINING

- 2022
- Modern Programming in Genome to Phenome, University of California, Davis, CA, August 1-5.
  - 27th Summer Institute in Statistical Genetics (SISG), University of Washington, Seattle, WA, July 18-27.
  - UIUC Spring Workshop: Applied Quantitative Genetics for Plant Breeders, University of Illinois Urbana-Champaign, Urbana, IL, June 1-3.

- COMPUTER SKILLS
- Statistics/Numerical computational tools: R, SAS
  - Computer vision and image processing: Python, MATLAB
  - Content-description languages:  $\text{\LaTeX}$
  - Operating system: Linux and Mac OS X
  - Computer clusters: Slurm workload manager

REFERENCES

**Dr. Gota Morota**

Associate Professor, School of Animal Sciences

Virginia Polytechnic Institute and State University, Blacksburg, Virginia USA

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