

Chunpeng James Chen

Department of Animal and Poultry Sciences

Virginia Tech

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EDUCATION

- 2016-2021 **Washington State University, Pullman, WA, USA**
Crop Science, Ph.D.
Dissertation: A Paradigm Shift in Breeding: From Genomics to Phenomics
- 2010-2014 **National Taiwan University, Taipei, Taiwan**
Agronomy, B.S.

PROFESSIONAL POSITIONS

- 01/2022 ~ Present **Assistant Professor of Animal Data Sciences**
Department of Animal and Poultry Sciences, Virginia Tech,
Blacksburg, VA, USA
- 03/2021 ~ 12/2021 **Postdoctoral Associate**
Department of Animal Science, University of California, Davis,
Davis, CA, USA
- 08/2016 ~ 12/2020 **Graduate Research Assistant**
Department of Crop and Soil Sciences, Washington State University,
Pullman, WA, USA
- 06/2019 ~ 08/2019 **Biostatistician Intern**
Department of Research and Development, BASF,
West Sacramento, CA, USA
- 04/2016 ~ 06/2016 **Research Assistant**
Institute of Plant and Microbial Biology, Academia Sinica, Taiwan
- 10/2015 ~ 03/2016 **Data Analyst**
Yu-Shun International Cultural CO., LTD, Taipei, Taiwan
- 10/2014 ~ 09/2015 **Corporal**
564 Armor Brigade, 8th Army Corps, Republic of China Army,
Taiwan

TEACHING EXPERIENCE

- 06/2021 ~ 12/2021 **Undergrad/Graduate Student Training**
Department of Animal Science, University of California Davis
Davis, CA, USA
- 05/2018 **Guest Lecture**
Introduction to Machine Learning and Ensemble Methods
Statistical Genomics (CropS 545) at Washington State University
- 02/2017 **Guest Lecture**
Principal Component Analysis

Spring 2017 Statistical Genomics (CropS 545) at Washington State University
Teaching Assistant
Statistical Genomics (CropS 545) at Washington State University

PROFESSIONAL ACTIVITIES

Oral Presentation

- Apr 2021 **WSU Crop Sciences Exit Seminar**
A Paradigm Shift in Breeding: From Genomics to Phenomics
- Feb 2021 **WSU Plant Sciences Retreat 2021**
GRID: a Python Package for Aerial High-Throughput Phenotyping
- Jan 2020 **Plant and Animal Genome 2020**
GRID: a Python Package for Aerial High-Throughput Phenotyping
- Jan 2019 **Wheat Quality Council 2019**
Toward Instant, Non-Destructive Prediction of Wheat Hagberg-Perten
Falling Number
- Jan 2019 **Plant and Animal Genome 2019**
iPat: A Genomics Analysis Tool for Everyone
- Jan 2019 **Plant and Animal Genome 2019**
Toward Instant, Non-Destructive Prediction of Wheat Hagberg-Perten
Falling Number
- Mar 2018 **WSU Plant Sciences Retreat 2018**
GWAS and GS are as easy as clicking and dragging with iPat.
- Feb 2018 **World Congress on Genetics Applied to Livestock Production 2018**
GWAS and GS are as easy as clicking and dragging with iPat.
- Jan 2018 **Plant and Animal Genome 2018**
iPat: Intelligent Prediction and Association Tool for Genomic Research
- Nov 2017 **WSU Crop Sciences Proposal Seminar**
Application of Random Forest in Genomics Selection
- May 2017 **Plant and Animal Genome Asia 2017**
iPat, a Versatile Tool for Genomics Studies
- May 2017 **Plant and Animal Genome Asia 2017**
Segregation Analysis and Its Implementation in iPat

Poster Presentation

- Mar 2018 **WSU Plant Science Symposium 2018**
iPat: intelligent prediction and association tool for genomic research
- Jan 2018 **Plant and Animal Genome 2018**
iPat: Intelligent Prediction and Association Tool for Genomic Research
- May 2017 **Plant and Animal Genome Asia 2017**
Intelligent prediction and association tool for genomic research
- Jan 2017 **Plant and Animal Genome 2017**
iPat: Interface of Prediction and Association for Genomics

Ad Hoc Reviewer (3)

Frontier in Genetics (1), Bioinformatics (1), Crop & Pasture Science (1), and PLoS One (1)

February 2022

SOFTWARE DEVELOPED

- XSimV2: A fast and user-friendly tool to simulate sequence data and complicated pedigree structures (<https://github.com/reworkhow/XSim.jl>)
- GRID: A Python Package for Aerial High-Throughput Phenotyping (<http://zzlab.net/GRID> and <https://poissonfish.github.io/GRID/index.html>)
- iPat: Intelligent Tool for Prediction and Association (<http://zzlab.net/iPat> and <https://github.com/Poissonfish/iPat>).

FOUNDING RECEIVED

- Washington Wheat Foundation, \$3,238, Principal Investigator, “Instant and non-destructive prediction of wheat Hagberg falling number from hyperspectral imaging by using parallel computation with graphics processing units (GPU)”, November 8, 2018 – November 7, 2019,
- Travel grant of International Conference of Plant and Animal Genome, 2018, \$1,300

PUBLICATIONS (10)

First / Co-first Authorship (5)

1. **Chen, C.J.** and Zhang, Z. (2020) GRID: A Python Package for Field Plot Phenotyping Using Aerial Images. [Remote Sensing, 12, 1697.](#)
2. Liu, L., Zhou, J., **Chen, C.J.** et al. (2020) GWAS-based identification of New Loci for Milk Yield, Fat, and Protein in Holstein Cattle. [Animals 10, 2048.](#)
3. Zhou, J., Liu, L., **Chen, C.J.** et al. (2019) Genome-wide association study of milk and reproductive traits in dual-purpose Xinjiang Brown cattle. [BMC Genomics 20, 827.](#)
4. **Chen C.J.**, Zhang, Z. (2018) iPat: intelligent prediction and association tool for genomic research. [Bioinformatics, 34, 1925-1927.](#)
5. **Chen C.J.**, Zhang, Z. (2018) GWAS and GS are as easy as clicking and dragging with iPat. [The World Congress on Genetics Applied to Livestock Production.](#)

Co-Authorship (1)

1. Tang, Z., Parajuli, A., **Chen, C.J.**, Hu, Y., Revolinski, S., Medina, C.A., Lin, S., Zhang, Z., and Yu, L.-X. (2021) Validation of UAV-based alfalfa biomass predictability using photogrammetry with fully automatic plot segmentation. [Scientific Reports 11, 3336.](#)

Under Publication (4)

1. **Chen, C.J.**, Garrick, D., Fernando, R., Karaman, E., and Cheng, H. (2021). XSim Version 2: Simulation of Modern Breeding Programs. **(Under review by G3)**
2. **Chen, C.J.**, Rutkoski, J., Schnable, J., Murray, S., Wang, L., Jin, X., Stich, B., Crossa, J., Hayes, B., and Zhang, Z. (2021). Harnessing Agronomics Through Genomics and Phenomics in Plant Breeding: A Review. **(Accepted by Plant Breeding Review)**
3. **Chen, C.J.**, Morota, G., and Cheng, H. (2021). Tracking Livestock Behaviors with Labor-Free Approach.
4. **Chen, C.J.** and Cheng, H. (2021). LMMonBoard: An Interactive Dashboard for Visualizing Mixed Models in Quantitative Genetics

PROGRAMMING PROFESSION

Python, R, Julia, Java, C, C++

AWARDS

2018-2021	Roscoe and Frances Cox Scholarship
2018-2020	Vogel Washington State Crop Improvement Association Scholarship
Oct, 2017	2 nd place for the 3 rd Annual WSU Hardware Hackathon
Jun, 2017	<u>Winner of Student Workshop Competition at PAG Asia</u>