Limeng (Momo) Xie

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Education

University of Georgia (UGA) — *Athens, GA*

PHD STUDENT IN PLANT BIOLOGY, GPA 4.00 — *2018 - Present*

- Advisor: Dr. Alexander Bucksch, Computational Plant Science Lab

Texas A&M University (TAMU) — *College Station, TX*

MASTER IN HORTICULTURAL SCIENCE, GPA 3.81 — *2014 - 2016*

- Certificate in Applied Statistics
- Advisors: Dr.Kevin Crosby & Dr.John Jifon, Vegetable Breeding Lab
- Thesis: SNP Discovery and Mapping QTLs Associated with Root Traits and Morphological Traits in Tomato

China Agricultural University (CAU) — *Beijing, China*

BACHELOR IN AGRONOMY, GPA 3.65 — *2009 - 2014*

- Thesis: Evaluation of Methane Production in Anaerobic Reactor with Sweet Potato Vine and Dairy Manure

Saga University — *Kyushu, Japan*

EXCHANGE STUDENT — *2011 - 2012*

- Major in Plant‘ Science and Japanese

Publications

Xie, L.,Burridge,J., Klepp, N., Miller, J., Lynch, J.P., Bucksch, A., Phenotypic spectrum: uncovering root architecture diversity in common bean (*Phaseolus vulgaris L.*) *In prep*

Xie, L., Klein, P., Crosby, K., & Jifon, J. (2019). A Genotyping-by-sequencing Single Nucleotide Polymorphismâ“based Map and Genetic Analysis of Root Traits in an Interspecific Tomato Population, *Journal of the American Society for Horticultural Science* 144(6), 394-404.

Presentations

2020 **Xie, L.**,Burridge,J., Klepp, N., Miller, J.,Lynch, J.P., Bucksch, A., **the 7th International Horticulture Research Conference**, *Poster*: “Quantifying diversity of root architecture types within a genotype of common bean (*Phaseolus vulgaris* .L)”, Online

2019 **Xie, L.**, Bucksch, A., **International Plant Phenotyping Symposium**, *Poster*: “The shape of plants revealed: A shape theoretic perspective on statistics of trait measurements”, Nanjing, China

2019 **Xie, L.**,Burridge,J., Klepp, N., Miller, J., Chutoe, C., Saengwilai, P., Lynch, J.P., Bucksch, A., **Crops Conference**, *Poster*:“The Phenotypic Spectrum: Identifying Whole Role Architecture Types in Genotypes of Common Bean (*Phaseolus vulgaris* .L)”, Huntsville, AL

2018 **Xie, L.**, Liu, S, Bucksch., A., **Plant Center Fall Retreat**, *Poster*: â□□Extracting Traits from 3D Models of Maize Root System Architectureâ□□, Unicoi State Park, GA

2017 **Xie, L.**, Klein, P., Crosby, K., & Jifon, J., **American Society of Horticultural Science Annual Meeting**, *Talk*: “Mapping Novel QTLs Associated with Root Morphological Traits in an Interspecific Tomato Population”, Waikoloa, HI

2016 **Xie, L.**, Klein, P., Crosby, K., & Jifon, J., **Annual Meeting of Texas Plant Protection Association**, *Poster*: â□□SNP Discovery and QTL Mapping for Root Related Traits in an Interspecific Tomato Populationâ□□, Bryan, TX

2015 **Xie, L.**, Crosby, K., & Jifon, J.,**Annual Meeting of Texas Plant Protection Association**, *Poster*: â□□Estimates of Genetic Variance for Drought Tolerance Traits in Tomatoâ□□, Bryan, TX

2015 **Xie, L.**, Crosby, K., & Jifon, J., **American Society of Horticultural Science Annual Meeting**, *Poster*: â□□Estimates of Genetic Variance for Drought Tolerance Traits in Tomatoâ□□, New Orleans, LA

Awards

2020 Jaworski Travel Award, Department of Plant Biology, UGA
2020 Travel Scholarship for Root Short Course, University of Floria
2016 Outstanding Graduate Student Award, Texas Plant Protection Association
2013 Third Prize Scholarship for Academic Excellence, CAU
2012 Japan Student Service Scholarship, Japan Student Service Organization
2011 Third Prize Scholarship for Academic Excellence, CAU
2010 Second Prize Scholarship for Academic Excellenc, CAU
2010 National Scholarship for Encouragement, Ministry of Education in China
2010 Merit Undergrate Student Award, CAU

Resarch Experience

Computational Plant Science Lab, UGA *Athens, GA*

Graduate Reserch Assistant *2018 - Present*

- Current project: The phenotypic spectrum: quantifying the diversity of root architecture in common bean
- Rotation projects: Developed an image processing pipeline to automatically extract root traits from 3D models of maize root system
- Rotation projects: Identified potential genetic regions with insulators in Bladderwort by analyzing a public RNA-sea database
- Rotation projects: Explored genetic variation of volatile content among 150 tomato accessions (wild, semi-domesticated, domesticated).

Vegetable Breeding Lab, TAMU *College Station, TX*

Lab Techician *2017*

- Conducted all daily operations including plant, fertilize, trellis, prune, IPM, supplies and asset acquisition to complete short term and long breeding goals over 7 greenhouses and acre-size field
- Established greenhouse trials of grafted tomatoes to study yield performance in relation to various rootstock and scion combinations
- Screened pepper hybrids for thrip resistance and performed hybrid testing at multiple locations across Texas
- Crossed pepper, tomato, melon and squash to produce hybrid seed.

Vegetable Breeding Lab, TAMU *College Station, TX*

Graduate Research Assistant *2014-2016*

- Measure morphological root traits using the WinRhizo software
- Extracted, purified, and quantified tomato DNA for GBS library
- Constructed linkage map for mapping population using R/qtl, AsMap, and Joinmap
- Mapped 29 QTLs for 12 root and shoot traits using R/qtl, WinQTLCartographer, MapQTL and QTLNetworks

Biomass Engineering Lab, CAU *Beijing, China*

Undergraduate Research Assistant *2012-2014*

- Reutilized agricultural wastse, e.g. dairy manure and sweetpotato vine, into clean and renewable energy
- Evaluated the volatile fat acid of effluent using HPLC
- Observed dairy manure and sweetpotato vine at a ration of 2:8 could have as stable methane production

Teaching & Mentoring

University of Georgia *Athens, GA*

Teaching Assistant *2019 Fall*

- Concepts in Biology (BIOL1103), 70 students
- Presented lectures for 3 lab session during semester
- Lead field trip and graded assigned homework for class
- Achieved overall student approval rating of 4.38 on 5 point scale

University of Georgia *Athens, GA*

Mentor *2020 Summer*

- Lilly Adams, REU Project: Developing a new image processing pipeline to extract root trait of Arabidopsis and identifying candidate genes for root traits from GWAS
- Joslyn Mcklveen, CURO Project: Analyze the effect of temperature and humidity on plant development on a newly-developed mesocosm system

Texas A&M University *College Station, TX*

Mentor *May 2017 - Dec 2017*

- Trained 8 undergraduates of pepper and tomato breeding

Agricultural Extension

Center for Chinese Agricultural Policy (CCAP) *Beijing, China*

Intern *Aug 2011*

- Participated the Farmer Field School Promotion Project led by CCAP, Ministry of Agriculture, and Rand Corporation (US)
- Investigated application of pesticides and fertilizers in tomato productions in Hubei Province
- Surveyed farmers in three villages and analyzed the questionare data

China Agricultural University *Beijing, China*

Co-leader, Summer Field Program *June 2011*

- Investigated the overuse of additives in the daylily industry in Qidong County
- Surveyed with local farmers and small business owners (>200 people)
- Presented results to the local government and appeared on the local media
- Organized a workshop introducing alternative methods to preserve daylily for farmers
- Won the Excellent Investigators Team Award

Synergistic Activities

2020 Judge Lead for Junior Section of 72nd Georgia Science & Engineering Fair
2019 Executive Board Member of Chinese Genomics Online Meet-up | Responsible for inviting guest speakers and technical support for live stream 2018 Volunteer for March for Science at Washington, DC
2015 Secretary, Texas A&M Horticulture Graduate Student Council
2015 Volunteer, Texas A&M Plant Breeding Symposium
2012 Spearker, Introduction of Chinese Culture with local schools in Ichikikushikino-shi, kagoshima, Japan
2011 CAU Ambassador, Student representative for university-wide foreign affair activities, CAU
2010 Scrum Half Player of College Rugby Team | Won the plateclass champion of college wide games, CAU
2010 Volunteer, Elder Care Center | Helped take care of senior people monthly, Beijing
2009 Tutor for a group of middle school students and several high school students in science courses, Qimen & Beijing

Professional Affiliations

Member, Botanical Society of America
Member, American Association for Advancement of Science
Member, Phi Alpha Xi Honor Society
Member, American Society of Horticultural Science

Skills

Bioinformatics: NGS (GBS, RNA-Seq), Reads Alignment (Bowtie, GSNAP), SNP Calling (Tophat, VCF Tools, Sam-Tools), Gene Expression Analysis (Cufflinks)
Quantitative and Population Genetics: Polygenetic Tree, QTL mapping, Marker Assistant Selection, Clustering, Principle Component Analysis
Computer and Data Sciences: Linux/Unix, Python (Pandas, Numpy, OpenCV, Sci-py, Jupyter Notebooks), R (R/qtl, ggplot2, Rmarkdown, Tidyverse), SQL (MariaDB, Dbeaver), Github
Language Skills: Chinese (Native), English (Fluent), Japanese (Basic)