

Limeng (Momo) Xie

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Education

University of Georgia (UGA)

Phd Candidate in Plant Biology, GPA 3.96

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

Athens, GA

2018 - Present

Texas A&M University (TAMU)

Master in Horticultural Science, GPA 3.81

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

College Station, TX

2014 - 2016

China Agricultural University (CAU)

Bachelor in Agronomy, GPA 3.65

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

Beijing, China

2009 - 2014

Saga University

Exchange Student

- Major in Plant Science and Japanese

Kyushu, Japan

2011 - 2012

Research Experience

Computational Plant Science Lab, UGA

Graduate Research Assistant

- Current project: Design and execute computational pipelines and greenhouse experiments to uncover the causes of root architecture diversity in common bean
- Rotation projects: 1. Developed an image processing pipeline to automatically extract root traits from 3D models of maize root system; 2. Identified potential genetic regions with insulators in Bladderwort by analyzing a public RNA-seq database; 3. Explored genetic variation of volatile content among 150 tomato accessions (wild, semi-domesticated, domesticated)

Athens, GA

2018 - Present

Vegetable Breeding Lab, TAMU

Lab Technician

- Conducted all daily operations including planting, fertilize, trellis, prune, IPM, supplies and asset acquisition to complete short and long breeding term 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

College Station, TX

2017

Vegetable Breeding Lab, TAMU

Graduate Research Assistant

- Measured morphological root traits using the WinRhizo software
- Extracted, purified, and quantified tomato DNA for GBS library
- Constructed a 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

College Station, TX

2014-2016

Biomass Engineering Lab, CAU

Undergraduate Research Assistant

- Reutilized agricultural waste, e.g. dairy manure and sweetpotato vine, into clean and renewable energy
- Evaluated the volatile fat acid of effluent using HPLC
- Obtained an optimal ratio of dairy manure and sweetpotato vine (2:8) to achieve the stable methane production

Beijing, China

2012-2014

Teaching & Mentoring

University of Georgia

Teaching Assistant

Athens, GA

Aug 2019 - Dec 2019

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

University of Georgia

Mentor

Athens, GA

May 2020 - Present

- Sydney Page, Research Project: Investigating how different water levels affect root-shoot allocation across various developmental stages and genotypes in common bean (2021 Summer-Fall)
- 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 (2020 Summer); Best Poster Prize at 2021 INSPIRE LSAMP Annual Conference
- Joslyn Mcklveen, CURO Project: Understanding Environmental Parameters' Effects on Common Bean Micronutrient Content (2020 Summer-Fall & 2021 Spring)

Texas A&M University

Mentor

College Station, TX

May 2017 - Dec 2017

- Trained a team of 8 undergraduates in the pepper and tomato breeding program

Agricultural Extension

Center for Chinese Agricultural Policy (CCAP)

Intern

Beijing, China

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 questionnaire data

China Agricultural University

Co-leader, Summer Field Program

Beijing, China

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

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 Polymorphism 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

2021 **Xie, L.,**Burridge,J., Lynch, J.P., Bucksch, A., **ASA, CSSA, SSSA International Annual Meeting**, *Oral*: Phenotypic Spectrum: Uncovering Root Architecture Diversity in Common Bean (*Phaseolus vulgaris* .L), Salt Lake City, UT

2021 Kim, C., **Xie, L.,** Bucksch, A., Seymore, L., Van Iersel, M., **American Society of Horticultural Science Annual Meeting**, *Poster*:Quantification of Canopy Size Using Automated Chlorophyll Fluorescence Image Analysis, Denver, CO

2021 **Xie, L.,**Burridge,J., Lynch, J.P., Bucksch, A., **North American Plant Phenotyping Network Annual Conference**, *Poster*: Phenotypic Spectrum: Uncovering Root Architecture Diversity in Common Bean (*Phaseolus vulgaris* .L), Online

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.**, Burrridge, 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*: Extracting Traits from 3D Models of Maize Root System Architecture”, Unicoi State Park, GA

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

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

Awards

2021 Best Poster Award UGA Phenomics Symposium, UGA

2021 Graduate Education Advancement Graduate Fellowship, Graduate School, UGA

2020 Palfrey Travel Award, Department of Plant Biology, UGA

2020 Travel Scholarship for Root Short Course, University of Florida

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 Excellence, CAU

2010 National Scholarship for Encouragement, Ministry of Education in China

2010 Merit Undergraduate Student Award, CAU

Leadership and Community Service

2021 Encompass Scholar of ASA, CSSA, SSSA to connect under-represented STEM students, science and mentorship

2021 Ambassador of International Society of Root Research | Responsible for promoting and advocating root research at the social media platform

2021 Panelist Speaker of Women in STEM for Outreach Activities in Athens-Clarke County High School

2021 Judge for Senior Section of 73rd Georgia Science & Engineering Fair

2020 Judge Lead for Junior Section of 72nd Georgia Science & Engineering Fair

2019 Judge for Senior Section of 71st 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 in March for Science at Washington, DC

2015 Secretary, Texas A&M Horticulture Graduate Student Council

2015 Volunteer, Texas A&M Plant Breeding Symposium

2012 Speaker, Introduction of Chinese culture to students at local elementary 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 champion of college wide games, CAU

2010 Volunteer, Helped take care of senior people monthly at a Elder Care Center, 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
Member, Crop science Society of America
Member, Graduate Women in Science

Skills

Bioinformatics: NGS (GBS, RNA-Seq), Reads Alignment (Bowtie, GSNAP), SNP Calling (Tophat, VCF Tools, Sam-Tools), Gene Expression Analysis (Cufflinks, Kallisto)

Quantitative and Population Genetics: Polygenetic Tree, QTL mapping, Marker Assisstant Selection, GWAS
Computer and Data Sciences: Linux/Unix, Python (Pandas, Numpy, OpenCV, Sci-py, Jupyter Notebooks), R (R/ql, gg-plot2, Rmarkdown, Tidyverse), SQL (MariaDB, Dbeaver), Github

Language Skills: Chinese (Native), English (Fluent), Japanese (Basic)