

# YiFan Xiong

✉ [ewanxiong@gmail.com](mailto:ewanxiong@gmail.com)  [github.com/ewanxiong](https://github.com/ewanxiong)

## Education

Fujian Agriculture and Forestry University | *M.S. in Bioengineering. GPA: 3.33/4.0*

Sep. 2019 - Jun. 2022

Wuhan University of Bioengineering | *B.S. in Bioengineering. GPA: 3.56/4.0*

Sep. 2015 - Jun. 2019

## Professional experience

Bioinformatic Research Assistant | *Tsinghua University*

Jul. 2024 - Present

Supervisor: Prof. Xuegong Zhang

Bioinformatics Analyst | *Dynamic Biosystems Ltd.*

Jun. 2023 - Jun. 2024

- Coding for scRNA-seq and scVDJ-seq data analysis and visualization, Independently developed R package [cellPCT](#).

Bioinformatics Analyst | *Tsinghua-Fuzhou Institute of Data Technology*

Jul. 2022 - Jun. 2023

- Single-cell data collection, metadata organization, cell type annotation and import into hECA2.0 Single-cell database.

## Research Experience

Bioinformatic Research Assistant | Supervisor: [Prof. Xuegong Zhang](#)

Jul. 2024 - Present

Evaluate the biological meaning in different single cell foundation models and Large Language Models' gene embedding

- Extract gene embedding from different models and unsupervised clustering to determine the biological meaning.

Identify core TFs combinations in T cells reprogramming and cell development using the algorithm scDirect

- Collect T cell related single-cell data, annotate CD8 T cell subclusters, identify TF combinations involved in the reprogramming of exhausted T cells to effector T cell.

LncRNA and ceRNA analysis of Marfan syndrome reveal the potential role of lncRNA in the pathogenesis

- LncRNA and mRNA expression time series and traits related co-expressed gene modules analysis.

Graduate Student Researcher | Supervisor: Prof. Shoukai Lin

Jun. 2019 - Jul. 2022

Calcium-dependent protein kinase family in *Fragaria vesca* and their functions under biotic stresses

- Phylogenetic analysis of the CDPK family in strawberry, explore collinearity among FvCDPKs, and determine the stress-related cis-acting elements in promoter regions.
- Conduct transcriptome analysis of different pathogen infections to reveal the distinctive functional responses.

Large-scale physiological and transcriptome analysis of adaptive responses of *Eriobotrya japonica* under freezing stress

- Genome-wide identification of Loquat protein kinase and TFs using motif specific HMM models and sequence similarity.
- Using WGCNA to associate the freezing-stress phenotype with co-expressed gene modules, find the hub genes in gene regulation networks with module membership and gene significance.
- Experimental verification of target genes in *Arabidopsis*, revealing the function of freezing stress resistance.

RNA-seq analysis provides insights into the regulatory mechanism of striped leaf albinism in *Areca catechu*

- *De novo* transcriptome analysis of arecanut leaf, determine the expression patterns of genes related to pigments biosynthesis, senescence and chloroplast development.

Undergraduate Research Assistant | Supervisor: Prof. Junlin Zhang & Prof. Zhongming Fang

Sep. 2016 - Jun. 2019

Extraction and identification of anti-cancer bioactive peptides and *in vitro* functional verification

- Wet-lab experience including DNA extraction, Real-time PCR, vector construction, protein extraction, SDS-PAGE, cell culture, establish mouse model, data processing and visualization.

Transcriptome analysis of *Oryza sativa* transgenic materials reveal mechanism of leaf senescence

- *OsAAP3* transgenic rice leaf tissue RNA-seq data analysis, from rawdata to DEG identification and gene functional enrichment analysis. Write parts of the paper, conduct data visualization, and respond to peer reviews.

## Publications

- **Yifan Xiong**, Shunquan Lin, Jincheng Wu, Shoukai Lin. Identification and Expression Analysis of CDPK Family in *Eriobotrya japonica*, reveals *EjCDPK25* in Response to Freezing Stress in Fruitlets. *bioRxiv*, 2024.  
<https://doi.org/10.1101/2024.05.01.591999>
- **Yifan Xiong**, Dahe Lin , Shiwei Ma, Chunhua Wang, Shoukai Lin. Genome-wide identification of the calcium-dependent protein kinase gene family in fragaria vesca and expression analysis under different biotic stresses. *European Journal of Plant Pathology*, 2022, 164(2):283-98. <https://doi.org/10.1007/s10658-022-02560-4>
- Wei Qilang, Zhenwei Yan, **Yifan Xiong**, and Zhongming Fang. Altered Expression of *OsAAP3* Influences Rice Lesion Mimic and Leaf Senescence by Regulating Arginine Transport and Nitric Oxide Pathway. *International Journal of Molecular Sciences*, 2021, 22, no.4: 2181. <https://doi.org/10.3390/ijms22042181>
- Jia Li, Xiaocheng Jia, Liyun Liu, Xianmei Cao, **Yifan Xiong**, Yaodong Yang, Huanqi Zhou, Ming Yi, and Meng Li. "Comparative biochemical and transcriptome analysis provides insights into the regulatory mechanism of striped leaf albinism in arecanut (*Areca catechu L.*)."  
*Industrial Crops and Products*, 2020, 154: 112734.  
<https://doi.org/10.1016/j.indcrop.2020.112734>

## Skills

- English: IELTS overall band 7 (Reading 8.5, Listening 7.5, speaking 6.5, writing 6.0)
- Programming: Proficient in R, Python and Shell
- NGS data analysis: scRNA-seq, bulk RNA-seq(ceRNA competition),WGS, WGBS, ATAC-seq
- Code Management and Version Control: Github and Gitlab
- Servers, Environment and Workflow Manager: Conda, Docker, Slurm, WDL and Snakemake

## Presentations and Posters

The 2nd Symposium of Fujian Bioinformation Society   Poster presentation   Fuzhou, Fujian province	Feb. 2023
Digital Medicine Algorithm Innovation Competition   Organization assistant   Fuzhou, Fujian province	Aug. 2022
Academic competition for Graduate Student   Oral and poster presentation   Fuzhou, Fujian province	May. 2022
The 10th National Symposium on Loquat   Poster presentation   Lanxi, Zhejiang province	May. 2021

## Honors & Awards

Academic Achievements Prize for Graduates   Fujian Agriculture and Forestry University	Jun. 2022
Scholarship for Graduates   Fujian Agriculture and Forestry University	Jun. 2020
Outstanding Graduates   Wuhan University of Bioengineering	Jun. 2019
Scholarship for Undergraduates 1st Place   Wuhan University of Bioengineering	Dec. 2018
Scholarship for Undergraduates 2nd Place   Wuhan University of Bioengineering	Dec. 2017
National English Competition for Undergraduates 3rd Place   Wuhan University of Bioengineering	May. 2017
Annual Outstanding Undergraduates   Wuhan University of Bioengineering	Dec. 2016
Scholarship for Undergraduates 3rd Place   Wuhan University of Bioengineering	Dec. 2015

## Outreach and Extracurricular Activities

Community volunteer for anti-COVID pandemic	Jun. 2020
Bilingual volunteer for the Tour of China Cycling Competition	May. 2016
Pre-College Summer School Program @Central Chnia Normal University	Jul. 2015 - Aug. 2015