

# YiFan Xiong

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## Education

**Fujian Agriculture and Forestry University** | *Fuzhou, Fujian Province, CN*

Sep. 2019 - Jun. 2022

- M.S. in Bioengineering. GPA: 3.33/4.0

**Wuhan Institute of Bioengineering** | *Wuhan, Hubei Province, CN*

Sep. 2015 - Jun. 2019

- B.S. in Bioengineering. GPA: 3.56/4.0

## Work experience

**Tsinghua University**

Jul. 2024 - Present

*XGlab, Research Assistant, Supervisor: [Prof. Xuegong Zhang](#)*

- Evaluate the biological meaning in different Large Language Models' gene embedding.
- Identify core TFs combinations in T cells reprogramming and cell development using the algorithm [scDirect](#).

**Suzhou Dynamic Biosystems Ltd.**

Jun. 2023 - Jun. 2024

*Department of Bioinformatic, Bioinformatics Engineer*

- Coding for Single-cell RNA-seq data analysis and virsulize. Independently developed R package [cellPCT](#).
- [Well-Paired-Seq](#) platform single-cell data testing and troubleshooting.

**Fuzhou Institue of Data Technology**

Jul. 2022 - Jun. 2023

*Department of Digital Medicine, Bioinformatics Engineer*

- Data collection, normalization and cell type annotation for hECA2.0 Sigle-cell database.
- Multi-Omics pipeline construction and NGS data analysis.

## Research Experience

**Undergraduate Research Assistant**

Supervisor: Prof. Junlin Zhang & Prof. Zhongming Fang

Sep. 2016 - Jun. 2019

**Extraction and identification of anti-cancer bioactive peptides from traditional Chinese medicine**

- Experiments including DNA extraction, PCR, vector construction, protein extraction, SDS-PAGE and cell culture, *et al.*

**Functional verification of QinFeng tea by constructing Hyperuricemia animal models**

- Construct mouse Hyperuricemia models using two protocols: a high-purine diet and the injection of uric acid metabolism enzymes inhibitors.
- Evaluate the models using quantitative analysis of uric acid and data processing.

**Altered Expression of *OsAAP3* Influences Rice Lesion Mimic and Leaf Senescence by Regulating Arginine Transport and Nitric Oxide Pathway(Published)**

- *OsAAP3* transgenic rice leaf tissue RNA-seq data analysis, from rawdata to DEG identification and gene functional enrichment analysis.
- Writting part of the paper and visualizing data.

## Graduate Student Researcher

*Plant Functional genomics lab* | Supervisor: Prof. Shoukai Lin

Jun. 2019 - Jul. 2022

### Genome-wide identification of the calcium-dependent protein kinase gene family in *Fragaria vesca* and expression analysis under different biotic stresses(Published)

- Explore the evolutionary history and sequence pattern of FvCDPKs.
- Conduct transcriptome analysis of wild strawberry under different pathogen infections.

### Identification and Expression Analysis of CDPK Family in *Eriobotrya japonica*, reveals *EjCDPK25* in Response to Freezing Stress in Fruitlets(Preprint)

- Identification of CDPK genes in loquat. Analysis gene sequence and protein motif patterns.
- Use weighted gene co-expression network analysis associated with physiological and biochemical traits to identify freezing stress response gene.
- Over-express the target gene in Arabidopsis, revealing that it can increase resistance to freezing stress.

### Large-scale Physiological and Transcriptome Analysis Insights into Adaptive Responses of *Eriobotrya japonica* Fruitlets to Freezing Stress(Under review)

- Genome-wide identification of Loquat protein kinase using plant kinase HMM models.
- Determining expression patterns of freezing-stress-related protein kinases.

## Publications

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

## Bioinformatic Skills

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- Programming languages: R, Python
- NGS data analysis: scRNA-seq, bulk RNA-seq(miRNA, lncRNA, circRNA),WGS, WGBS, ATAC-seq
- Workflow Management: WDL, Snakemake
- Code Management and Version Control: Github and Gitlab
- Servers and Environment Manager: Conda, Docker, Slurm

## Academic activities

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<b>The 10th National Symposium on Loquat</b>   <i>Lanxi, Zhejiang province</i>	<b>May. 2021</b>
<ul style="list-style-type: none"><li>• Submit an abstract on the topic of <i>Identification calcium sensors in loquat</i></li></ul>	
<b>Academic poster competition for Graduate Student</b>   <i>Fujian Agriculture and Forestry University</i>	<b>May. 2022</b>
<ul style="list-style-type: none"><li>• Oral and poster presentation on the topic of my graduate thesis</li></ul>	
<b>Digital Medicine Algorithm Innovation Competition</b>   <i>Fuzhou, Fujian province</i>	<b>Aug. 2022</b>
<ul style="list-style-type: none"><li>• Organization assistant</li></ul>	
<b>The 2nd Symposium of Fujian Bioinformation Society</b>   <i>Fuzhou, Fujian province</i>	<b>Feb. 2023</b>
<ul style="list-style-type: none"><li>• Poster presentation</li></ul>	

## Honors & Awards

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