

Yifan Xiong

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Education

Fujian Agriculture and Forestry University <i>M.S. in Bioengineering.</i>	Sep. 2019 - Jun. 2022
Wuhan University of Bioengineering <i>B.S. in Bioengineering.</i>	Sep. 2015 - Jun. 2019

Professional experience

Bioinformatics engineer <i>Dynamic Biosystems Ltd, Xiamen, China</i>	Jun. 2023 - Jun. 2024
• Development team member of the Well-Paired-Seq single-cell platform; Independently developed R package cellPCT.	
Bioinformatics engineer <i>Tsinghua-Fuzhou Institute of Data Technologies, Fuzhou, China</i>	Jul. 2022 - Jun. 2023
• Metadata organization and cell type annotation for the hECA2.0 Single-cell Atlas; Construct Multi-omics pipelines.	

Research Experience

Bioinformatics Research Assistant	Jul. 2024 - Present
<i>Department of Automation, Tsinghua University, PI: Prof. Xuegong Zhang</i>	
Evaluate the biological meaning in different single cell foundation models and LLM's gene embedding	
• Extract gene embedding from different models, evaluate the biological meaning by multi downstream tasks.	
Reversing T cell exhaustion through TF combinations identified by scDirect algorithm	
• Annotate T cell subclusters in scRNA-seq datasets and deduce TF combinations for reversing exhausted T cells.	
LncRNA and ceRNA analysis of Marfan syndrome reveal the potential role of lncRNA in the pathogenesis	
• Co-expression analysis of lncRNA and mRNA identifies potential pathogenesis ncRNAs involved in MF syndrome.	
Graduate Student Researcher	Jun. 2019 - Jul. 2022
<i>Department of Life Science, Fujian Agriculture and Forestry University, PI: Prof. Shoukai Lin</i>	
Identify Calcium-dependent protein kinase family in <i>Fragaria vesca</i> and reveal their expression patterns under biotic stresses	
• Phylogenetic analysis of CDPK family in strawberry, and determine the stress-related Cis-regulatory elements.	
• Conduct transcriptome analysis of different pathogen infections to reveal the distinctive functional responses.	
Large-scale physiological and transcriptome analysis of adaptive responses of <i>Eriobotrya japonica</i> under freezing stress	
• Genome-wide identification of Loquat protein kinase and TFs using motif HMM models and sequence similarity.	
• Associate the freezing-stress traits with co-expressed gene modules, find the hub genes in gene regulation networks.	
• Experimental verification of target genes in <i>Arabidopsis</i> , revealing the function of freezing stress resistance.	
Undergraduate Research Assistant	Sep. 2016 - Jun. 2019
<i>Applied Biotechnology Research Center, Wuhan University of Bioengineering, PI: Prof. Junlin Zhang & Prof. Zhongming Fang</i>	
Extraction and identification of anti-cancer bioactive peptides and <i>in vitro</i> functional verification	
• Wet-lab training including vector construction, QPCR, SDS-PAGE, cell culture, animal model establishment.	
Transcriptome analysis of <i>Oryza sativa</i> transgenic materials reveal mechanism of leaf senescence	
• <i>OsAAP3</i> transgenic rice leaf tissue RNA-seq data analysis, conduct data visualization, and respond to peer reviews.	
RNA-seq analysis provides insights into the regulatory mechanism of striped leaf albinism in <i>Areca catechu</i>	
• <i>De novo</i> transcriptome analysis of arecanut leaf, determine the expression patterns of genes related to pigments biosynthesis, senescence and chloroplast development.	

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

- Language: IELTS overall band 7 (Reading 8.5, Listening 7.5, speaking 6.5, writing 6.0), native in mandrain Chinese.
- 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: Slurm, Conda, Docker, WDL and Snakemake

Presentations and Posters

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

Honors & Awards

Employee of the Year Award <i>Dynamic Biosystems Ltd.</i>	Dec. 2023
Academic Achievements Prize for Graduates <i>Fujian Agriculture and Forestry University</i>	Jun. 2022
Scholarship for Graduates <i>Fujian Agriculture and Forestry University</i>	Jun. 2020
Outstanding Graduates <i>Wuhan University of Bioengineering</i>	Jun. 2019
Scholarship for Undergraduates 1st Place <i>Wuhan University of Bioengineering</i>	Dec. 2018
Scholarship for Undergraduates 2nd Place <i>Wuhan University of Bioengineering</i>	Dec. 2017
National English Competition for Undergraduates 3rd Place <i>Wuhan University of Bioengineering</i>	May. 2017
Annual Outstanding Undergraduates <i>Wuhan University of Bioengineering</i>	Dec. 2016
Scholarship for Undergraduates 3rd Place <i>Wuhan University of Bioengineering</i>	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