

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 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 mandarin Chinese.
- Programming: Proficient in R, Python and Shell
- NGS data analysis: scRNA-seq, bulk RNA-seq(mRNA, lncRNA and miRNA),WGS, WGBS, ATAC-seq
- Code Management and Version Control: Github and Gitlab
- Server 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 China Normal University	Jul. 2015 - Aug. 2015