Yifan Xiong

ewanxiong@gmail.com GoogleScholar Homepage

Education

Fujian Agriculture and Forestry University | *M.S. in Bioengineering.* **Sep. 2019 - Jun. 2022**

Wuhan University of Bioengineering | *B.S. in Bioengineering.* **Sep. 2015 - Jun. 2019**

Professional experience

Bioinformatics engineer | *Dynamic Biosystems Ltd, Xiamen, China* **Jun. 2023 - Jun. 2024**

- Development team member of the Well-Paired-Seq single-cell platform; Independently developed R package cellPCT.

Bioinformatics engineer | *Tsinghua-Fuzhou Institue of Data Technologies, Fuzhou, China* **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**

Department of Automation, Tsinghua University, PI: Prof. Xuegong Zhang

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**

Department of Life Science, Fujian Agriculture and Forestry University, PI: Prof. Shoukai Lin

Identify Calcium-dependent protein kinase family in *Fragaria vesca* and reveal their expression patterns under biotic stresses

- Phylogenetic analysis of CDPK family in strawberry, and determaine 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 *Eriobotrya japonica* under freezing stress

- Genome-wide identification of Loquat protein kinase and TFs using motif specific HMM models and sequence similarity.
- Associate the frezzing-stress traits with co-expressed gene modules, find the hub genes in gene regulation networks.
- Experimental verification of target genes in *Arabidopsis*, revealing the function of freezing stress resistance.

Undergraduate Research Assistant **Sep. 2016 - Jun. 2019**

Applied Biotechnology Research Center, Wuhan University of Bioengineering, PI: Prof. Junlin Zhang & Prof. Zhongming Fang

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

- Wet-lab training including vector construction, QPCR, SDS-PAGE, cell culture, annimal model establishment.

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

- *OsAAP3* 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 *Areca catechu*

- *De novo* transcriptome analysis of arecanut leaf, determaine 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 |*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

Employee of the Year Award |*Dynamic Biosystems Ltd.* **Dec. 2023**

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**