




YUELIN YAO

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🌐 <https://yuelinyao.github.io/>

Education



- Nov 2020 – May 2024  **Ph.D. Computational biology, University of Edinburgh, UK**
School of Informatics, IANC: Machine Learning, Computational Neuroscience, Computational Biology.
Thesis: *High order expression dependencies finely resolve cell (sub)type and state in single cell data.*
- Sep 2019 – Sep 2020  **M.Sc. Bioinformatics, University of Edinburgh, UK**
School of Biological Sciences, Graduated with Distinction.
Thesis: *Comparative transcriptome in large-scale human and cattle populations.*
- Sep 2015 – Jun 2019  **B.Sc. Plant Protection, Zhejiang University, China.**
College of Agriculture and Biotechnology, GPA: 3.63/4.0.
Thesis: *Functional analysis of genes related to development and reproduction of Nilaparvata lugens.*

Experience







Biomedical AI Lab

- Nov 2020 - Ongoing  Developed state-of-the-art pipeline and computational tool for **scRNA-seq** data analysis.
 Estimated **mutational interactions** across pancancer from WGS data.
 Received training in **Causality in Biomedicine Course**, and **Neuromatch Deep Learning Course**.
- Jan 2022 - Ongoing  Teaching. Tutor and marker of **Methods for Causal Inference Course**.
 **Supervised** Bachelor's thesis & MSc dissertations.
- Dec 2023  Presented poster at **CSHL Genome Informatics**, New York State, US.
- Nov 2022  Presented poster at **CSHL The Biological Data Science conference**, New York State, US.
- Jun 2022  Summer School. **Dynamics and Statistics of Cancer Evolution: Applying Mathematics to Experimental and Clinical Data** Summer School in Marseille, France.
- May 2021  Presented poster at **CSHL The Biology of Genomes virtual conference**.

Quantitative Genetics Lab

- Jan 2020 - Sep 2020  Systematic comparison of **transcriptional landscape & eQTL** of all orthologous genes across major tissues among mammals.
 Integrative analysis of characterised regulatory elements with **large-scale GWAS** to understand shared & divergent genetic architecture underlying complex phenotypes.

Awards and Achievements

- 2023  **The Scottish Informatics & Computer Science Alliance (SICSA) Research Scholar**
 **Chinese Government Award for Outstanding Self-Financed Students Abroad**
 **The Institute of Genetics and Cancer POGS Event Best Poster**
- 2022  **The Institute of Genetics and Cancer Early Career Award**
 **Informatics Graduate School PGR Student Travel and Conference Fund**
- 2020  **School of Informatics PhD Scholarship, University of Edinburgh**

Skills

Coding	■ R, Python, Java, SQL, HTML, Shell, Docker, Git, Nextflow, \LaTeX .
Technical Skills	■ Machine learning, Statistical modelling, High-throughput bioinformatics analysis.
Languages	■ Strong reading, writing and speaking competencies for English, Mandarin Chinese.

Publications

- 1 A. Jansma*, **Y. Yao***, J. Wolfe, *et al.*, "High order expression dependencies finely resolve cryptic states and subtypes in single cell data," *bioRxiv*, pp. 2023–12, 2023.
- 2 S. H. Waddell*, **Y. Yao***, P. Olaizola, *et al.*, "A TGF- β -ECM-integrin signaling axis drives structural reconfiguration of the bile duct to promote polycystic liver disease," *Science Translational Medicine*, vol. 15, no. 713, eabq5930, 2023.
- 3 **Y. Yao**, S. Liu, C. Xia, *et al.*, "Comparative transcriptome in large-scale human and cattle populations," *Genome Biology*, vol. 23, no. 1, pp. 1–24, 2022.
- 4 Z. Pan*, **Y. Yao***, H. Yin, *et al.*, "Pig genome functional annotation enhances the biological interpretation of complex traits and human disease," *Nature Communications*, vol. 12, no. 1, p. 5848, 2021.
- 5 S. Liu, Y. Gao, O. Canela-Xandri, ..., **Y. Yao**, *et al.*, "A multi-tissue atlas of regulatory variants in cattle," *Nature Genetics*, vol. 54, no. 9, pp. 1438–1447, 2022.
- 6 T. Jinyan, Y. Gao, ..., **Y. Yao**, *et al.*, "A compendium of genetic regulatory effects across pig tissues," *Nature Genetics*, 2024.
- 7 W. Yang, J. Yu, **Y. Yao**, *et al.*, "Comparative immune-relevant transcriptome reveals the evolutionary basis of complex traits," *IScience*, vol. 25, no. 12, p. 105 572, 2022.
- 8 D. Guan, Z. Bai, X. Zhu, ..., **Y. Yao**, *et al.*, "The chickengtex pilot analysis: A reference of regulatory variants across 28 chicken tissues," *bioRxiv*, pp. 2023–06, 2023.
- 9 W. Wang, R.-R. Yang, L.-Y. Peng, L. Zhang, **Y.-L. Yao**, and Y.-Y. Bao, "Proteolytic activity of the proteasome is required for female insect reproduction," *Open Biology*, vol. 11, no. 2, p. 200 251, 2021.
- 10 S. Mi, Y. Tang, ..., **Y. Yao**, *et al.*, "Protective roles of folic acid in the responses of bovine mammary epithelial cells to different virulent staphylococcus aureus strains," *Biology*, vol. 10, no. 11, p. 1164, 2021.