ZHOU YING

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Summary

I am passionate about neuroscience, showcasing resilience and determination throughout my academic journey. At Fudan, I studied interneuron classification and gyrus development, recognizing brain complexity. Working in a hospital exposed me to the pain of disease and optimized variant interpretation computational methods, while Harbin Medical University sharpened my bioinformatics skills, revealing links between brain tumors and neural stem cells. My main interest is understanding how heterogeneous cell populations arise from neural stem/progenitor cells and how these mechanisms go wrong in brain cancer or cortical malformations like pachygyria. I aim to manipulate these mechanisms to control cell fate for potential new treatments. Details of my story and scientific interest can be found in my PS, Research Interests and SoP

Education

MS **Harbin Medical University**, Biomedical Engineering (Bioinformatics) — Sep. 2022 to Present
- GPA: 3.92 (Not Final Decision)
- Analysis of scRNA-seq, ChIP-seq, CUT&RUN|TAG, Ribo-seq, AS|APA, CRISPR Screens etc.

Slide decks

MS **Fudan University**, Neurobiology (Neurodevelopment & neural classification) — Sep. 2016 to Jan. 2020
- Thesis defense: 92.32/100 points; GPA: 2.99/4.0 (Details of Transcript)
- **Coursework:** Advanced Neurobiology, Progress in Brain Function and Diseases, Neural circuit: from gene to function, Optical Image in Neuroscience, Patch-Clamp Techniques etc.

Thesis
Slide decks

BS **Hunan Agricultural University**, Bioengineering — Sep. 2012 to July. 2016
- GPA: 3.59/4.0 (Details of Transcript)

Research Experience

Systematic comparison of glioblastoma (GBM) and neurodevelopmental trajectories — Harbin Medical University, China, Jan. 2023 to Present
- Integrated and analyzed 5 GBM single-cell/single-nucleus transcriptome datasets.
- Aligned these datasets with developmental trajectories observed in fetus to systematically compare and profile the dynamically changing molecular expressions in GBM.
- **Acquired:** experience in scRNA-seq analysis, dry experimental design, proposal writing and funding application.

POSTER

Improving variant prioritization in exome analysis by entropy-weighted ensemble of multiple tools (Published as first co-author) — Xinhua Hospital affiliated to Shanghai Jiaotong University School of Medicine, China, May 2020 to Oct. 2022
- Evaluated the efficacy of variant prioritization tools in a large rare disease cohort with heterogeneous phenotypic information
- Used an entropy-weighted ensemble of multiple tools to improve variant prioritization and accelerate molecular diagnosis in exome/genome sequencing.
- **Acquired:** comprehended basic model construction methods and evaluation; practiced extracting information from clinical notes; Developed skills in WES data analysis; Honed scientific writing skills.

POSTER

Sncg, Mybpc1, and Parm1 Classify subpopulations of VIP-expressing interneurons in layers 2/3 of the somatosensory cortex (Published) — Fudan University, China, 2017 to May 2020
- Constructed and implemented quantification methods to describe morphological and electrophysiological features of interneurons.
- Identified distinct subpopulations of neocortical VIP+ interneurons using morphological and electrophysiological properties, as well as molecular markers.
- **Acquired:** electrophisiological and neural morphological data analysis, and mastered unsupervised classification methods.

POSTER

Effects of Cell Cycle and migration on Cortical Folding During Brain Development in ferret — Fudan University, China, May 2016 to Aug. 2018
- Investigated how stem cell activity affects cortical folding during development, identifying key differentiation patterns.
- Labled types of neural stem/progenitor cells, and analyzed their differentiation and cell cycle.
- **Acquired:** Wet lab skills including IHC, WB, virus injection, and time-lapse recording, and developed proficiency in image analysis using ImageJ, Matlab, Imaris, and Photoshop.

POSTER

Publications

Improving variant prioritization in exome analysis by entropy-weighted ensemble of multiple tools. Clin Genet. (First co-author) Oct. 2022

Fan Y,***Zhou Y***, Liu H, Luo X, Xu T at al. POSTER

doi:10.1111/cge.14257.

Sncg, Mybpc1, and parm1 classify subpopulations of VIP-expressing interneurons in layers 2/3 of the somatosensory cortex. Cereb Cortex. Aug. 2022

Jiang SN, Cao JW, Liu LY, ***Zhou Y***, Liu H, Shan GY, Fu YH, Shao YC, Yu YC. POSTER

doi:10.1093/cercor/bhac343.

Effect of post-weaning isolation on anxiety- and depressive-like behaviors of C57BL/6J mice. Experimental Brain Research 2017

Huang Q, ***Zhou Y***, Liu LY

doi:10.1007/s00221-017-5021-5

Region-specific SPON1 expression regulates cortical folding and brain function. Under submission

Lin YN, Chen JY, Yang FW, Huang Q, Xue YP, Tao Y, He N, He M, Yu M, He ZB, Fan K, Tong SY, Xu YQ, Luo YH, Li YX, ***Zhou Y***, Peng G, Zhang T, Wu RQ,Shi SH, Liu LY, Yu YC POSTER

Working Experience

Clinical data Analyst May 2020 to Jun. 2022

- Clinical data analyst of GeneDock Corporate, based on Shanghai Institute of Pediatric Research, Xinhua Hospital affiliated to Shanghai Jiaotong University School of Medicine, Shanghai, China
- Participated 2 WES/WGS projects, published paper of 'genetic variant auto-interpretation' projects as first co-author.
- Further practice Python, complicated coding and model building skills

Additional Experience

- The second international conference on single-cell and spatial omics (TICSSO-2), 29th-30th March 2024, Shenzhen, China.
- 2020 conference of Medical Geneticists Branch of Chinese Medical Doctor Association, 16th-17th Oct. 2020, Chengdu, China.
- The 11th FENS Forum of Neuroscience, 7th-11th July 2018, Berlin, German
- The 12th National Academic Conference of Chinese Society for Neuroscience, 2017, Tianjing, China.
- Volunteer of The national science-popularizing public activity held by Chinese Society for Cell Biology, May 2017, Shanghai, China

Awards|Scholarships|Funding|Certificates

- **Funding (2023-2024):** Postgraduate Research & Practice Innovation Program of Harbin Medical University(No.YJSCX2023-120HYD)
- **Scholarship (2018&2017):** Neuroscience scholarship at Fudan University
- **Scholarship (2016 - 2017):** Kwang-Hua Award at Fudan University
- **Award(2012-2013&2012-2014)** Outstanding Student at Hunan Agricultural University
- **Certificate:** Certificate of science popularization worker at Chinese society of cell biology
- **Certificate:** ShangHai Computer Rank Examination three level Data science and artificial intelligence certificate
- **Certificate:** National Computer Rank Examination two level VB language certificate
- **Certificate:** Hunan Computer Application Rank Examination two level certificate

Skills

- Python, R, Matlab, stastics, basic data mining and machine learning skills
- Bulk/Single cell/Single nucleus RNA-seq, ChIP-seq, CUT&RUN/CUT&TAG, Ribo-seq, and other molecular bioinformatics anaylysis skills
- Neuronal morphological and electrophysiological data analysis skills
- Basic Anatomic experiment, frozen section and IHC, WB, virus injection,tissue cell culture and other biological experiments