Zichen HONG

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EDUCATION

Department of Chemistry, Zhejiang University Zhejiang, China 09/2022 - Present
M.Phil. Student. Concentration in analytical chemistry and in vitro diagnosis
- GPA: 90.6/100 Rank: 1/ 80

Chu Kochen Honors College, Zhejiang University Zhejiang, China 09/2018 - 06/2022
B.S. in Chemistry
- GPA: 3.95/4.0 Rank: 4/ 20
- Coursework: Analytical Chemistry, Physical Chemistry, Supramolecular Chemistry, Probability, Engineering Training, Organic Synthesis Experiment, Biochemistry and Experiment C, Chemical Biology Experiment, Visualization in Scientific Computing

Queen's University Belfast: Engineering and Physical Sciences Summer School 2021(remote) 07/2021 - 07/2021
- 2021 Excellent Oral Presentation

PUBLICATIONS

[1] Yuanxin Zhang†, **Zichen Hong†**, Xuan Fu, Bo Yao*, and Guangzhong Ma*. Label-Free Electrochemical Imaging of Single Extracellular Vesicles. bioRxiv. https://doi.org/10.1101/2024.05.21.595111. (Preprint. submitted to PNAS)

[2] Jingfeng Zhang†, **Zichen Hong†**, Wei Lu, Tianyuan Fang, Yongan Ren, Shenyi Yin, Qijia Xuan, Dezhi Li*, Jianzhong Jeff Xi*, and Bo Yao*. Assessment of Drug Susceptibility for Patient-Derived Tumor Models through Lactate Biosensing and Machine Learning. *ACS Sensors.* **2023** 8 (2), 803-810.

RESEARCH EXPERIENCE

Label-Free Electrochemical Imaging of Single Extracellular Vesicles
Co-worker, Supervisor: AP. Guangzhong MA & Prof. Bo YAO 06/2023 – Present

Outline:
- To measure the impedance of a single EV.
- Responsible for cell culture, extraction of EVs , partial experiments and machine learning section.
- Under review. To be published.

A Drug Susceptibility Assessment Model Based on Machine Learning and Gold Electrode Biosensor
Co-worker, Supervisor: Prof. Bo YAO 03/2022 – 03/2023

Outline:
- To design a new method for measuring the viability of *in vitro* tumor models, which could evaluate the killing effect of anti-cancer drugs more accurately and help doctors design clinical dosing plans.
- Responsible for the machine learning section. I established a machine learning model to assess tumor sphere viability.

Achievement:
- Published a paper as co-first author in the journal ACS Sensors.
- Won Excellent Award at the 11th Scientific Research Achievement Exhibition of the Department of Chemistry, Zhejiang University.
- Conducted a 20 minute Oral Presentation in "the 5th Microfluidic Technology Application Innovation Forum" of the Chinese Society of Micro-Nano Technology, Guangzhou, China.

Identifying Cell Types through SERS and Machine Learning
Researcher, Supervisor: Prof. Bo YAO 09/2022 – 05/2023

Outline:
- To distinguish between cancer cells with different types and drug resistance.
- Utilized Confocal Surface Enhanced Raman Spectroscopy (SERS) to acquire 3082 spectra of 5 cell lines and employed a random forest algorithm via Python to identify these spectra.
- Achieved an overall accuracy of 93.2% to distinguish 5 cell lines.
- Data not published. This was a training program for machine learning.

TEACHING EXPERIENCE

- TA, College Chemistry Experiment A, ZJU (Awarded Excellent TA, Instructor: Prof. Hong SHEN) Spring 2023

- TA, Analytical Chemistry B, ZJU (Instructor: Prof. Bo YAO) Fall 2022

HONORS AND AWARDS

- Outstanding Graduate Student 2023
- China National Petroleum Corporation (CNPC) Scholarship (for all-round ability, awards to 2 out of 425 students, CNY 8000) 2023
- Outstanding Graduates of Zhejiang University 2022
- First Place for "the 15th Shanghai College Student Chemistry Experiment Competition" in Shanghai 2021
- Top Scholarship for Basic Disciplines (awards to 2 out of 21 students, CNY 5000) 2021
- Second Class of Zhejiang University Scholarship (for all-round ability, Top 8%, CNY 4000) 2021
- Five-star Volunteer of ZJU (the highest honor, personal volunteer service time exceeded 250 hours) 2020
- Outstanding Student 2019
- Zhejiang Provincial Government Scholarship (for all-round ability, Top 3%, CNY 6000) 2019
- First Class of Zhejiang University Scholarship (for all-round ability, Top 3%, CNY 6000) 2019
- First Class of Tianxing Freshman Scholarship (awards to 10 out of 83 students, CNY 10000) 2019
- Second Prize of the 31st Chinese Chemistry Olympiad 2017

PROFESSIONAL SKILLS

- **Programming:** Python, Matlab
- **Languages:** Chinese (native), English (IELTS 7.5)

EXTRACURRICULAR ACTIVITIES

Chairman Science Popularization Office, Department of Chemistry, ZJU 01/2020 – 09/2021

- Engaged in science popularization activities and led pupils from Hangzhou Wenli Primary School and Zhejiang University Affiliated Second Primary School to conduct chemistry experiments.

Director the Rights and Services Department of the Student Union of the Department of Chemistry, ZJU 09/2019 – 01/2020

- Established an online analytical chemistry Q&A group to help (more than 200) students with learning difficulties.

Team member Summer Teaching Support Team of Peasant Rural and Agriculture Association (PRAA), ZJU 07/2019 – 08/2019

- Acted as a fourth & fifth grade science teacher in primary school, Anhui Province, China.
- Our team won the Gold Award for "China Education Support Project: Chinese College Students Rural Teaching Support Award" (Only two teams nationwide)

Updated: Aug 3, 2024