

# Erica Weilan Wang

Postdoctoral Research Scientist

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## WORKING EXPERIENCE .....

### Postdoctoral Research Scientist (Jun 2021 – Present)

*School of Data Science, The City University of Hong Kong, Hong Kong*

- Research grant proposal writing, preparation, and application for six projects of external funded grants, and midterm and final report writing
- Collaboration on human resource, marketing, and database development in a start-up company (Compass®, funded by HKTech 300) based on research outcomes from our team
- Application of interpretable machine learning and deep learning methods on diagnosis, prognosis, and survival analysis
- Processing and analysis on population based large-scale data from multiple disciplines including non-communicable disease risk assessment, obstetrics, oncology, and surgery
- Editorial work of *IEEE Transactions on Computational Social Systems*, *IEEE Transactions on Intelligent Transportation Systems*
- Maintaining working relationships between the School of Data Science with hospitals and other health centres

### Research Assistant (Feb 2020 – Jun 2021)

*Department of Oral & Maxillofacial Surgery, The University of Hong Kong, Hong Kong*

- Circulating tumour cell scanning and images analysis, object recognition by deep learning
- Retrospective clinical data collection and analysis on oral cavity cancer and liver cancer
- Meta-analysis and systematic review
- Device physics simulation for blood circulating tumour cell separation based on magnetic particles enrichment method

### Research Assistant (Oct 2017 – Jun 2021)

*Department of Obstetrics and Gynaecology, The University of Hong Kong/Queen Mary Hospital, Hong Kong*

- Ethical approval and certificate of clinical trial applications for various studies
- Subject recruitment, intervention, specimen collection, data collection and analysis for randomized clinical trials (RCTs) and surveys
- Data collection and analysis for RCTs, retrospective studies, and meta-analysis on preterm birth, miscarriage, pregnancy mental issue, and parental viral transmission
- Clinical trial monitoring and conduction

### Intern in Pharmaceutical Production (Jun 2011 – Jul 2011)

*The Affiliated Hospital of Guangxi University of Chinese Medicine, China*

- Modern formulation production of Traditional Chinese Medicine (pills, capsules and topical use)
- Quality control for heavy metal and microorganisms

## TEACHING EXPERIENCE .....

### Teaching Assistant (Jun 2012 – Sept 2017)

*The Polytechnic University of Hong Kong, Hong Kong*

- Assisted and instructed 15+ undergraduate students and 10+ M.Sc. students in graduation project design, operation, statistical analysis, and manuscript writing
- Organizing, Demonstrating, and delivering practical sessions in Clinical BioChemistry course

### Scientist in Residence (Jun 2018 - Present)

*Yew Chung International School/Amusing Science, Hong Kong*

- Guided in Science classes, and provide consultancy to primary and secondary school students to interest inspiration
- Student Assignment reviewing and scoring

## EDUCATION .....

### Ph.D. in Biomedical Science (Jul 2012 – Mar 2017)

*The Polytechnic University of Hong Kong, Hong Kong*

- GPA 3.7/4
- Thesis: "Vitamin D Status in Young Adults in Hong Kong: a Biomarker Approach to a Public Health Concern"

### B.Sc. in Pharmaceutical Science / Minor in English Literature (Sept 2008 – Jun 2012)

*Sun Yat-Sen University, China*

- GPA 3.8/4

## RELEVANT RESEARCH SKILLS .....

### Data Science

- Fluent user of multiple programming language including Python, R, and SQL
- Data processing and biostatistics, especially on medical data analysis
- Machine learning and deep learning, with focusing on interpretable algorithms

### Medicine

- Laboratory work including HPLC, ELISA, DNA extraction, cell culture, the comet assay and in-vitro biomarker measurement
- Project design and conduction of prospective and retrospective epidemiology studies, surveys, and randomized clinical trials
- Proficient in research ethics, Electronical Medical Records, and medical data safety.

### Others

- Worked independently and in collaboration with people from different departments and backgrounds
- Outstanding record on proposal and report writing
- Handling complicated projects under tight deadlines
- Languages: Chinese (native), English (proficient), Cantonese (proficient)

## RELEVANT CERTIFICATIONS .....

- Licensed Pharmacist (Mainland, China)
- Licensed in Good Clinical Practice (Hong Kong)

## SELECTED PUBLICATIONS .....

- **W Wang**, P Thomson, J Curtin, Q Zhang, SW Choi. Searching for 'The Needle in a Haystack': Deep Learning and the Recognition of Circulating Tumour Cells. *Diagnostics*. Submitted
- P Liang, J Yang, **W Wang**, M Han, Q Zhang, Z Li. A Clinically-Intelligible Deep Learning Approach to Diagnostic Screening of Chronic Kidney Disease. *Journal of the American Medical Informatics Association*. Submitted
- KW Cheung, MTY Seto, **W Wang**, CT Ng, WWK To, EHY Ng. Trend and causes of maternal death, stillbirth and neonatal death over seven decades in Hong Kong. *The Lancet Regional Health - Western Pacific*. Accepted.
- Mok YK, Cheung KW, **Wang W**, Li RH, Shek NW, Ng EH. The effects of not having continuous companion support during labour on pregnancy and neonatal outcomes during the COVID-19 pandemic. *Midwifery*. 2022 May 1;108:103293.
- Adeoye J, Alade AA, Zhu WY, **Wang W**, Choi SW, Thomson P. Efficacy of hypermethylated DNA biomarkers in saliva and oral swabs for oral cancer diagnosis: Systematic review and meta-analysis. *Oral diseases*. 2022 Apr;28(3):541-58.
- Curtin J, Wong G, **Wang W**, Thomson P, Lam AK, Choi SW. A comparison of two methods for the detection of circulating tumour cells in patients with oral cavity cancer. *Journal of Oral Pathology & Medicine*. 2022 Mar;51(3):249-55. doi: 10.1111/jop.13240.
- **Wang W**, Adeoye J, Thomson P, Choi SW. Statistical profiling of oral cancer and the prediction of outcome. *Journal of Oral Pathology & Medicine*. 2021 Jan;50(1):39-46. doi: 10.1111/jop.13110.
- **Wang W**, Adeoye J, Thomson P, Choi SW. Multiple tumour recurrence in oral, head and neck cancer: Characterising the patient journey. *Journal of Oral Pathology & Medicine*. 2021 Nov;50(10):979-84.
- Cheung KW, Seto MT, **Wang W**, Lai CW, Kilby MD, Ng EH. Effect of delayed interval delivery of remaining fetus (es) in multiple pregnancies on survival: a systematic review and meta-analysis. *American journal of obstetrics and gynecology*. 2020 Apr 1;222(4):306-19. doi: 10.1016/j.ajog.2019.07.046.
- Cheung KW, Seto MT, Wong D, Mak AS, So PL, Lau WL, **Wang W**, Kan AS, Lee CP, Ng EH. Pattern and predictors of medical care received by hepatitis B carriers during pregnancy and after delivery. *Public Health*. 2019 Mar 1;168:36-42.
- Cheung KW, Seto MT, So PL, Wong D, Mak AS, Lau WL, **Wang W**, Kan AS, Lee CP, Ng EH. The effect of rupture of membranes and labour on the risk of hepatitis B vertical transmission: Prospective multicentre observational study. *European Journal of Obstetrics & Gynecology and Reproductive Biology*. 2019 Jan 1;232:97-100.
- Cheung KW, Seto MT, So PL, Wong D, Mak AS, Lau WL, **Wang W**, Kan AS, Lee CP, Ng EH. Optimal timing of hepatitis B virus DNA quantification and clinical predictors for higher viral load during pregnancy. *Acta Obstetrica et Gynecologica Scandinavica*. 2019 Oct;98(10):1301-6.
- **Wang EW**, Pang MY, Siu PM, Lai CK, Woo J, Collins AR, Benzie IF. Vitamin D status and cardiometabolic risk factors in young adults in Hong Kong: associations and implications. *Asia Pacific journal of clinical nutrition*. 2018 Jan;27(1):231-7. Doi:10.6133/apjcn.022017.08
- **Wang EW**, Siu PM, Pang MY, Woo J, Collins AR, Benzie IF. Vitamin D deficiency, oxidative stress and antioxidant status: only weak association seen in the absence of advanced age, obesity or pre-existing disease. *British Journal of Nutrition*. 2017 Jul;118(1):11-6.
- **Wang EW**, Collins AR, Pang MY, Siu PP, Lai CK, Woo J, Benzie IF. Vitamin D and oxidation-induced DNA damage: is there a connection?. *Mutagenesis*. 2016 Nov 1;31(6):655-9.

**Full publication list:** <https://scholar.google.com/citations?hl=en&user=nsaTSyYAAAAJ>