Henry, Wai Yin WONG
Resume

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Summary

Data Scientist with expertise in machine/deep learning (ML/DL), Bayesian statistics, and software development. Researched in topics in gravitational-wave (GW) physics.

Research Experience

Feb 2025 – Present

Research Assistant (Part-time)

Johns Hopkins University
Supervised by Prof. Emanuele Berti

Parameter Estimation with Simulation-based Inference

- Develop a DL-based method to compute posterior probability distribution of parameters in post-merger GW signals.

Aug 2021 – Present

Research Assistant (Part-time)

University of Santiago de Compostela
Supervised by Prof. Juan Calderón Bustillo

Hierarchical-formation Viability of Black holes (BHs)

- Develop Bayesian framework to infer posterior probability distributions of the ancestral properties of the component BHs in GW events, including GW190521 (2404.00720).
- Released the framework as an open-source package archeo.
- Contributed to two discovery papers of GW event, exploring hierarchical formation of PISN BHs (2507.08219 & TBC).

Hubble Constant Measurement with GWs

- Simulated GW waveform of intermediate-mass BH mergers and analyzed conditions to resolve mass-redshift degeneracy under designed sensitivity of LISA.

May 2020 - Dec 2021

Student Researcher

The Chinese University of Hong Kong
Supervised by Prof. Tjonnie G. F. Li and Prof. Kenny C. Y. Ng

Searches for Strongly Lensed GW Images

- Developed overlap statistics for filtering non-lensed signal pairs, achieving >99% filtering efficiency at a false positive rate of 0.01 on 700,000 simulated signal pairs (2112.05932).

Simulation of Solar Atmospheric Gamma rays

- Developed a semi-analytical method to numerically simulate solar atmospheric gamma-ray flux.

Education

2024 – 2026 (Expected)

M.Sc. in Data Science

The University of Texas at Austin
GPA: 4.0/4.0

2018 – 2022

B.Sc. in Physics (2:1)

The Chinese University of Hong Kong

Work Experience

June 2024 – Present

Data Scientist

Overseas Orient Container Line Ltd.
Develop MILP algorithms for bunker procurement optimization.

Aug 2023 – Jun 2024

R&D Engineer

ATAL Engineering Group
Built physics-guided ML models for fault detection, survival analysis, and energy optimization.

Jun 2022 – Aug 2023

Software Engineer

Sebit Company Ltd.
Developed DL solutions of computer vision and maintenance strategy of lifts, conference paper published.

Skills

Language: English / Japanese / Cantonese / Mandarin

Programming: Python (main) / SQL / Js / C++ / Go / Bash / LaTeX

Academic Interests

GW astrophysics / Deep Learning / Multi-messenger astronomy

Publications

The LIGO Scientific Collaboration (2025), "GW231123: a Binary Black Hole Merger with Total Mass $190-265\,M_\odot$." (2507.08219).

Carlos Araujo, Henry W. Y. Wong et al. (2024). "Kicking Time Back in Black Hole Mergers: Ancestral Masses, Spins, Birth Recoils, and Hierarchical-formation Viability of GW190521." (The Astrophysical Journal).

Henry W. Y. Wong et al. (2024). archeo: A Bayesian framework for inferring natal kick, ancestral masses and spins of black holes (DOI: 10.5281/zenodo.15556625).

Jimmy K. K. Chan et al. (2023). "Condition-based and predictive maintenance strategy for lift installations using big data analytics." (14th Symposium on Lift & Escalator Technologies).

Henry W. Y. Wong et al. (2021). "Using overlap of sky localization probability maps for filtering potentially lensed pairs of GW signals." (2112.05932).

Full CV: wyhwong.github.io/cv