# YIQIAN QIAN

## Astrophysicist/Data Analyst


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## EDUCATION

### Ph.D. in Astrophysics

**Huazhong University of Science and Technology**

Sep 2021 – July 2025  Wuhan, China

Research Interests: pulsar timing array, gravitational waves, data analysis, machine learning

### M.Sc. in Physics

**University of Texas Rio Grande Valley**

Aug 2018 – Aug 2020  Texas, United States

Thesis title: Methods for Multi-source Resolution in Pulsar Timing Array Based Gravitational Wave Detection

### B.Sc. in Physics

**Huazhong Univ. of Science & Technology**

Sep 2013 – June 2017  Wuhan, China

Thesis title: Black Hole Accretion Disk and Emission Line Profiles

## EXPERIENCE

### Summer School

**University of California Berkeley**

June 2016 – Aug 2016  Berkeley, USA

- Quantum Mechanics, PHYSICS 137A, GPA: 3.0/4.0

### Research Internship

**Kavil Institution Astronomy & Astrophysics at Peking University**

July 2017 – Sep. 2017  Beijing

- Ill-posedness of inverse problems about covariance matrix in gravitational wave detection.
- Calculating theoretical lower limit on DM Index.

### Research Assistant

**University of Texas Rio Grande Valley**

Aug 2018 – Aug 2020  Brownsville, USA

- Using stochastic optimization algorithm Particle Swarm Optimization to resolve multiple super massive black hole binary candidates given a population.
- Develop the C/C++ code and run it parallelly on the super computer LoneStar 5 at Texas Advanced Computing Center.

### Research Assistant

**Huazhong University of Science & Technology**

Dec 2020 – Aug 2021  Wuhan, China

- Multi-source resolution for deterministic gravitational wave sources in pulsar timing array data
- Investigation in stochastic gravitational wave background

## CONFERENCES

### Pulsar Timing Array in China

**Peking University**

28 May – 1 Jun 2017  Beijing, China

### FAST Future Pulsar Symposium 6

**Hubei University of Education**

Jun 28 – 30 2017  Wuhan, China

### TACC Symposium for Texas Researchers

**Texas Advanced Computing Center**

Sep 26 – 27 2018  Austin, USA

### TACC Symposium for Texas Researchers

**Texas Advanced Computing Center**

Sep 26 – 17 2019  Austin, USA

### FAST User Training

**Five-Hundred-Meter Aperture Spherical Telescope**

Sep 26 - 29 2021  Guizhou, China

### Machine Learning in Astrophysics

**Sanxia University**

Oct 8 – 12 2021  Yichang, China

## INTERESTS

Astrophysics | Gravitational Waves | Pulsars | Black Holes | Cosmology | Extraterrestrial Intelligence

C/C++ | Python | Data Science | ML/DL | HPC

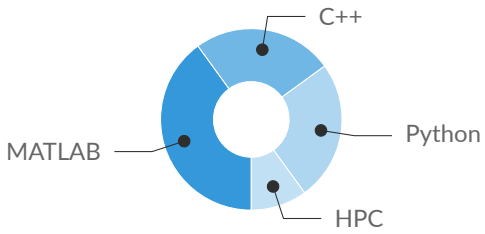
## LANGUAGES

**Mandarin** ●●●●●

**English** ●●●●○

**Japanese** ●●○○○

## </>SKILLS




## REFEREES

**Dr. Soumya D. Mohanty**
@ University of Texas Rio Grande Valley
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1 West University Boulevard, Brownsville
78520, Texas, USA

**Dr. Yan Wang**
@ Huazhong Univ. of Science & Technology
ywang12@hust.edu.cn
1037 Luoyu Road, Wuhan
430074, Hubei, China

## PUBLICATIONS

### Journal Articles

- Qian, Yi-Qian, Soumya D. Mohanty, and Yan Wang (July 2022). "Iterative Time-Domain Method for Resolving Multiple Gravitational Wave Sources in Pulsar Timing Array Data". In: *Physical Review D* 106.2, p. 023016. DOI: 10.1103/PhysRevD.106.023016.
- Songsheng, Yu-Yang, Yi-Qian Qian, Yan-Rong Li, et al. (Dec. 2021). "Search for Continuous Gravitational-wave Signals in Pulsar Timing Residuals: A New Scalable Approach with Diffusive Nested Sampling". In: *The Astrophysical Journal* 922.2, p. 228. ISSN: 0004-637X, 1538-4357. DOI: 10.3847/1538-4357/ac25fc.
- Wang, Yan, Soumya D. Mohanty, and Yi-Qian Qian (May 2017). "Continuous gravitational wave searches with pulsar timing arrays: Maximization versus marginalization over pulsar phase parameters". In: *Journal of Physics: Conference Series* 840, p. 012058. DOI: 10.1088/1742-6596/840/1/012058.