# Huihao **Zhang**

STUDENT · RESEARCH ASSISTANT

*364 W Lane Ave, Columbus, OH 43201, United States*

(614) 208-3927 | zhang.12043@osu.edu | hu1haozhang.github.io | Hu1haoZhang | huihao-zhang-a86b4a1b8


## Education

**The Ohio State University(OSU)** — *Columbus, Ohio*

BS IN PHYSICS AND ASTRONOMY & ASTROPHYSICS — *Jan. 2021 - Present*

- Cumulative GPA of 3.88

**Shandong Jiaotong University(SDJTU)** — *Jinan, China*

BE IN SAFETY ENGINEERING, ALREADY TRANSFERRED TO OSU — *Aug. 2018 - Jan. 2021*

## Honors & Awards

| | | |
|---|---|---|
| 2022 | **Ann Slusher Tuttle Award**, Recognizes outstanding astronomy majors, nominated by faculty | *Columbus, Ohio* |
| 2022 | **URAP Research Fellowship**, Selected by the office of undergraduate education of Ohio State University. | *Columbus, Ohio* |
| 2022 | **Smith Sophomore Award**, Recognizes outstanding physics majors(sophomore), nominated by faculty. | *Columbus, Ohio* |
| 2021-22 | **Dean's List(5 out of 5)**, The Ohio State University | *Columbus, Ohio* |
| 2020 | **Third-class of scholarship**, Recognizes outstanding safety engineering majors, nominated by faculty | *Jinan, China* |

## Research Projects

**Quantifying the Ability of JWST and ELT to Detect Biosignatures in the Atmosphere of Exoplanets.** — *Columbus, Ohio*

ADVISOR: JI WANG; THE OHIO STATE UNIVERSITY — *Nov. 2021 - Present*

- Based on NASA's publicly available data, we assume that TRAPPIST-1 e has the atmosphere of Modern Earth and Archean Earth.
- We use PICASO/petitRADTRANS for simulating the transmission spectra of TRAPPIST-1 e and use PandExo for simulating JWST observation results of TRAPPIST-1 e
- We use the BT-Settl model to simulate the flux of TRAPPIST-1, assuming that TRAPPIST-1 e has an Earth-like albedo(Modern), and use the method proposed by Dr. Ji Wang and Dr. Dimitri Mawet et al. to simulate the results of ELT direct imaging of TRAPPIST-1 e.
- Based on the method proposed by Caprice Phillips and Dr. Ji Wang el al. to quantify the ability of JWST and ELT to detect a single gas biosignature in the atmosphere of exoplanets, we proposed a method to detect the ability of JWST and ELT to detect a gas pair biosignatures.
- The main language of the project is Python, and the main libraries used in this project are PICASO, PandExo, petitRADTRANS, Astropy, NumPy, Pandas, and Matplotlib.
- This project was selected by Undergraduate Research Apprenticeship Program(URAP) of Ohio State University and was awarded a three-month(May - July, 2022) research fellowship for a total of $6,000(Approx)

## Presentation

**Quantifying the Ability of JWST to Detect Biosignatures** — *Columbus, Ohio*

GREAT LAKE EXOPLANET AREA MEETING — *Nov. 2022*

- H., Zhang, J., Wang.

**Exploring JWST's observations for gases of terrestrial planets** — *Columbus, Ohio*

SEMINAR OF OSU EXOPLANET GROUP — *Jan. 2022*

- H., Zhang, J., Wang.

## Skills

| | |
|---|---|
| **Programming** | Python, Mathematica, LaTeX |
| **Technology** | PandExo, PICASO, petitRADTRANS, Astropy, sklearn, TensorFlow Keras, VS Code, Mathematica, Davinci Resolve, Premiere Pro |
| **Languages** | English(Fluent), Chinese(Native) |

## Extracurricular Activity & Volunteering

### Friends of Ohio State Astronomy and Astrophysics

*Columbus, Ohio*

Volunteer

*Oct. 2022*

- Providing directions, organizing signage
- Answer questions from participants

### Fan translation(Chinese) of Youtube channel Launch Pad Astronomy

*Cyber Space*

Member&Volunteer

*May. 2022 - PRESENT*

- I was given permission to translate four videos as a volunteer and post them on the Chinese community Bili Bili.
- Videos currently receives 12k plays on Bili Bili.