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*

- Cumulative GPA of 3.24

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: WANG JI; 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. Wang Ji and Dr. Mawet Dimitri et al. to simulate the results of ELT direct imaging of TRAPPIST-1 e.
- Based on the method proposed by Phillips Caprice and Dr. Wang Ji 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*

SIMINOR 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.