

# PATCHARAPOL WACHIRAPHAN

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## EDUCATION

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**University of Colorado Boulder** *2021 - Now*

PhD in Astrophysics

**GPA: 3.81**

Department of Astrophysical and Planetary Sciences

**Mahidol University, Bangkok, Thailand** *2016 - 2020*

Bachelor Degree in Science (Sri-Tang-Tong Scholarship) **GPAX: 3.60 (First Class Honors)**

Department of Physics, Faculty of Science

**Distinction Program**

**Bunyawat Witthayalai School, Lampang, Thailand** *2010 - 2016*

Certificate of Secondary Education

**GPAX: 3.74**

## RESEARCH EXPERIENCE

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**Research Assistant (2022-Now)**

Center for Astrophysics and Space Astronomy, University of Colorado Boulder

Advisor : Dr. Zach Berta-Thompson

Thermal emission spectroscopy of rocky exoplanet LTT1445Ab.

**Research Assistant (Summer 2022)**

Center for Astrophysics and Space Astronomy, University of Colorado Boulder

Advisor : Dr. Zach Berta-Thompson

The JWST Transiting Exoplanet Community Early Release Science Program.

**Undergraduate Thesis (2019-2020)**

Department of Physics, Faculty of Science, Mahidol University, Thailand

**Project :** *The TESS full orbital phase curve and gravity darkening analysis of KELT-9 system*

**Advisor :** Dr. Petchara Pattarakijwanich

Build a Python-based model to update KELT-9 system's parameters based on TESS photometric data.

**Short-term Summer Research (Summer 2019)**

Harvard-Smithsonian Center for Astrophysics, Cambridge, MA, US

Advisor : Dr. George Zhou

Learning and practising crucial tools and skills to analyse astrophysical data from TESS spacecraft and its follow-up telescope.

**Physics Summer Research Experience (PSURE2018) (Summer 2018)**

Mahidol University, Bangkok, Thailand

**Project :** *Data reduction of exoplanetary transit spectrum*

**Advisor :** Dr. Petchara Pattarakijwanich

Reduction and analysis for raw stellar spectra obtained from an Echelle spectrograph on the

2.4m Thai National Telescope.

### **2B-KMUTT Research Camp (2015)**

**King Mongkut's University of Technology Thonburi (KMUTT), Bangkok, Thailand**

**Project :** *Big data and clustering analysis with Weka software*

**Advisor :** **Dr. Wiboonsak Watthayu**

A basic concept of big data and data analysis with Weka software.

## **TEACHING EXPERIENCE**

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### **Teaching Assistant**

**Dept. of Astrophysics & Planetary Sciences, University of Colorado Boulder**

ASTR3800: Data Analysis & Computing (Spring 2024, Lecture TA)

ASTR3720: Planets & Their Atmospheres (Spring 2024, Lecture TA)

ASTR1010: Introductory Astronomy I (Spring 2022, Lecture TA and Laboratory TA)

ASTR1030: Accelerated Introductory Astronomy I (Fall 2021, Laboratory TA)

## **PROFESSIONAL EXPERIENCE**

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### **Research Assistant (2020-2021)**

**School of Information Science and Technology (IST), VISTEC, Thailand**

Bio-inspired Robotics and Neural Engineering (BRAIN) Lab

## **PUBLICATIONS**

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- *Identification of carbon dioxide in an exoplanet atmosphere*, JWST Transiting Exoplanet Community Early Release Science Team (**incl. Wachiraphan, P.**), 2023, Nature, 614, 649.
- *An Extreme-mass Ratio, Short-period Eclipsing Binary Consisting of a B Dwarf Primary and a Pre-main Sequence M Star Companion Discovered by KELT*, Stevens, D. J. *et al.* (**incl. Wachiraphan, P.**), 2020, MNRAS, 499, 3775.
- *Prescreening MCI and Dementia Using Shank-Mounted IMU During TUG Task*, Cherachapridi, P., **Wachiraphan, P.** et al., 2022, IEEE Sensor Journal, 22, 24550.
- *Sensor-Driven Achieving of Smart Living: A Review*, Leelaarporn, P., **Wachiraphan, P.** et al. (**equal contribution**), 2021, IEEE Sensor Journal, 21, 10369.

## **CONFERENCE PRESENTATIONS**

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### **243rd AAS meeting**

#### **Oral Presentation**

**Title :** *Tentative evidence for an atmosphere in rocky exoplanet*

### **Siam Physics Congress (2020)**

#### **Oral Presentation, Online**

**Title :** *MRES Reduction Pipeline*

### TESS Science Conference I (2019)

Poster presentation, MIT, Cambridge, MA, US

Title : *Spectroscopic follow-up of planet candidates with the Thai National Telescope*

### HONORS AND AWARDS

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- *Chance Irick Cooke Endowed Fellowship* by Dept. of Astrophysical and Planetary Sciences (Excellence in Graduate Research)
- *Sri-Tang-Tong* Scholarship by Faculty of Science, Mahidol University (Fully-Funded Scholarship)
- *Phet-Tong-Gwaw* Scholarship by Faculty of Science, Chiang Mai University (10,000 THB/Year, Declined)

### SKILLS

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**Programming:** Python, LINUX (Shell Script), Matlab, Mathematica, HTML, C, Access, JAVA Script

**Microsoft office:** Word, Excel, Powerpoint, Access, L<sup>A</sup>T<sub>E</sub>X

**Media:** Vegas Pro

**Languages:** Thai (Native), English (IELTS 7.5)

### EXTRA-CURRICULAR

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**Fall 2022 - Summer 2024 :** Vice President of CU Boulder Thai Student Association (TSA)

**Fall 2021 - Summer 2022 :** Observatory Committee

**January 2020 :** Organizer in Insomnia concert (2020)

**July 2018 :** Organizer in Science Freshy camp (2018)

**June 2018 :** Mahidol Cheerleader in Atom game (2018)

**December 2016 :** Teacher in Volunteer Camp