# YICHEN LIU 刘亦辰

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🌐 https://yliu.fit   ♊ Yichen Liu

📍 Tucson, AZ, 85719   🔬 =author:("liu,yichen") keyword:("astrophysics")

## EDUCATION

**University of Arizona** | Steward Observatory                                                          AZ, US
- Ph.D. Student (Advisor: Professor Xiaohui Fan)                                              *Expected 2024/08*

**University of Illinois Urbana-Champaign** | College of Liberal Arts & Sciences                          IL, US
- *Bachelor of Science* (3.95/4.00)                                                          *2022/08 - 2024/05*
- Thesis: *Host galaxy properties of HSC-SSP variable AGNs in the COSMOS field* (Advisor: Professor Xin Liu)
- Majors: **Astrophysics** and **Mathematics**; Minors: **Physics**, **Computer Science**, and **Chemistry**
- Graduated with **Highest Distinction** in both majors, **Cum Laude**, and **James Scholar Honor**

**University of Macau** | Faculty of Science & Technology + Honour College                          Macau SAR, China
- Major: **Applied Physics and Chemistry**; Minor: **Sociology**                              *2019/08 - 2022/05*

## RSEARCH ASSISTANTSHIPS

**University of Arizona** | Steward Observatory                                                          AZ, US
- Advisor: Professor Xiaohui Fan and Professor Eiichi Egami                                   *Expected 2024/08*

**Peking University** | The Kavli Institute for Astronomy and Astrophysics                          Beijing, China
- Advisor: Professor Luis C. Ho                                                              *2024/05 - Present*

**University of Illinos Urbana-Champaign** | Department of Astronomy                                      IL, US
- Advisor: Professor Xin Liu                                                                 *2022/09 - 2024/05*

**Chinese Academy of Sciences** | National Astronomical Observatory of China                        Beijing, China
- Advisor: Professor Chaojian Wu                                                             *2022/06 - 2022/08*

**University of Macau** | Institute of Applied Physics and Materials Engineering                  Macau SAR, China
- Advisor: Professor Hongchao Liu                                                            *2019/09 - 2022/05*

## RESEARCH AREAS

- Topics: Supermassive Black Holes, Galaxies, Computational Imaging
- Methods: Model Fitting, Observation, Machine Learning

## PUBLICATIONS

Summary: SSLError(MaxRetryError("HTTPSConnectionPool(host='api.adsabs.harvard.edu', port=443): Max retries exceeded with url: /v1/search/query?q=docs

**First-Author Publications**

1. **Yichen Liu**, Colin Burke, Charlotte A. Ward, et al., "Host galaxy properties of variable AGNs in COSMOS and prospects for LSST," *American Astronomical Society Meeting Abstracts 243*, 342.04 (2024)

2. **Yichen Liu**, Peixia Zheng, Hong-Chao Liu, "Anti-loss-compression image encryption based on computational ghost imaging using discrete cosine transform and orthogonal patterns," *Optics Express 30*, 14073 (2022)

**Co-Author Publications**

1. Colin J. Burke, **Yichen Liu**, Charlotte A. Ward, et al., "Dwarf AGNs from Variability for the Origins of Seeds (DAVOS): Properties of Variability-Selected AGNs in the COSMOS Field and Expectations for Rubin Observatory," *arXiv e-prints*, arXiv:2402.06882 (2024)

2. Grant Merz, **Yichen Liu**, Colin J. Burke, et al., "Detection, instance segmentation, and classification for astronomical surveys with deep learning (DEEPDISC): DETECTRON2 implementation and demonstration with Hyper Suprime-Cam data," *Monthly Notices of the Royal Astronomical Society 526*, 1122 (2023)

## COLLABORATIONS

Member          LSST Dark Energy Science Collaboration

## AWARDS

**Honors and Prizes**

- University of Illinois Dean's Honor List (2022-2024)                              *2024/07*
- University of Macau Dean's Honour List (2020 and 2022)                    *2022/08*
- Third Prize, China Undergraduate Physics Tournament                       *2020/10*
- National Team Leader at the 2019 European Union Contest for Young Scientists   *2019/09*
- Bronze Medal, International Olympiad of Astronomy and Astrophysics    *2018/11*
- First Prize, China Adolescents' Science and Technology Innovation Contest   *2018/08*
- Second Prize, China National Astronomy Olympiad                           *2018/05*

**Scholarships and Grants**

- AAS 243rd Meeting Travel Grants                                                     *2023/10*
- NCSA SPIN Internship (Summer 2023 & Academic Year 23-24)          *2023/08*
- Smart Star Scholarship for the Summer Program                            *2022/06*
- Residential College Scholarship for the Summer Program                 *2021/05*
- University of Macau Full Scholarship (2019-2021)                          *2019/08*

## OBSERVATION EXPERIENCES

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| Cerro Tololo Inter-American Observatory, 4m/DECam | 3 nights (remote) | *2023/01 - 2023/04* |
| Personal Remote Observatory at Hebei, China, 10in/QHY9sm | | *2019/08 - 2022/08* |
| Amateur Astro-Landscape and Deep-Sky Photography | | *2014/10 - Present* |

## COLLOQUIA AND SEMINARS

- NCSA lighning talk (IL, US)                                                            *2023/07*

## PRESENTATIONS IN MEETINGS AND CONFERENCES

- Poster, *2nd Annual NCSA Student Research Conference* (IL, US): "Detection, Instance Segmentation, and Classification for Astronomical Surveys with Deep Learning"    *2024/04*
- Talk, *243th Meeting of the American Astronomical Society* (LA, US): "Host galaxy properties of variable AGNs in COSMOS and prospects for LSST"    *2024/01*
- Poster, *STEM Career Exploration and Symposium* (IL, US)                *2023/07*
- Poster, *EU Contest for Young Scientists* (Sofia, Bulgaria): "Narrow-Band Photometry of Emission Nebulae Using Small-Caliber Telescope"    *2019/09*

## TEACHING EXPERIENCES

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| University of Illinois at Urbana-Champaign \| Department of Astronomy | IL, US |

- Undergraduate Tutor for PHYS 213, 214, and ASTR 210                  *2023/01 - 2023/05*

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| University of Macau \| Unofficial Seminar of Physics | Macau SAR, China |

- Crafted and delivered "SPUM 102 The tools of the physical tools" (video), providing in-depth explorations of mathematical concepts beyond the standard undergraduate curriculum    *2022/02 - 2022/05*

**OUTREACH**

Physics and Mathematics Video Creator on Bilibili                     *2021/09 - 2022/08*
- [Complex Variables Video Series](#) (in Chinese, currently over 160,000 views)

President of Beijing Youth Astronomy Union                            *2017/08 - 2018/08*
- Sidewalk astronomy near Beijing's Olympic Park (organizer)
- WeChat Official Account "北京市中学生天文联盟" (manager, with a post over 100,000 views)
- 2nd Beijing Astronomy and Astrophysics Olympiad (organizer)

**DEPARTMENTAL SERVICES**

- Director of the Physics Society, University of Macau                *2020/08 - 2021/02*
- Student Helper of the Department of Physics and Chemistry, University of Macau    *2020/07 - 2020/10*

**RESEARCH MENTEES ADVISED/CO-ADVISED**

Diego Miura            Yale University                                *2024-Present*

**PROFESSIONAL SKILLS**

**Programming**:    Python/Jupyter, LaTeX, MATLAB, Git, Arduino, Shell Bash/Zsh, C/C++, Mathematica, Julia, Docker, SQL, and Java

**Softwares**:      COMSOL, Altium Designer, KiCAD, Solidworks, and Cinema 4D