

YICHEN LIU 刘亦辰

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[Chisen-Lupus](#)

[Yichen's Google Scholar](#)

[Yichen's ADS Publications](#)

EDUCATION

University of Arizona | Steward Observatory AZ, US

- Ph.D. Student (Advisor: [Professor Xiaohui Fan](#)) 2024/08 - Present

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

RESEARCH ASSISTANTSHIPS

University of Arizona | Steward Observatory AZ, US

- Advisor: [Professor Xiaohui Fan](#) and [Professor Eiichi Egami](#) 2024/08 - Present

Peking University | The Kavli Institute for Astronomy and Astrophysics Beijing, China

- Advisor: [Professor Luis C. Ho](#) 2024/05 - 2024/08

University of Illinois 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: Black Holes, Quasars, Galaxies, Computational Imaging
- Methods: Technical improvements, Model Fitting, Observation, Machine Learning

PUBLICATIONS

Summary: total count = 9, total citation = 31, first-author citation = 8, h-index = 3 (based on ADS)

First-Author Publications

1. **Yichen Liu**, Colin J. Burke, Diego Miura, et al., "Dwarf Active Galactic Nuclei from Variability for the Origins of Seeds (DAVOS): Properties of Variability-Selected AGNs in the Dark Energy Survey Deep Fields," *arXiv e-prints*, arXiv:2503.06372 (2025)
2. **Yichen Liu**, Ruancun Li, Yuanzhe Jiang, et al., "GalFitT: Multi-epoch Image Deconvolution and Light Curve Extraction," *American Astronomical Society Meeting Abstracts 245*, 354.21 (2025)
3. **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)
4. **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. Yoshinobu Fudamoto, Jakob M. Helton, Xiaojing Lin, et al. (incl. **Yichen Liu**), “SAPPHIRES: A Galaxy Over-Density in the Heart of Cosmic Reionization at $z=8.47$,” *arXiv e-prints*, arXiv:2503.15597 (2025)
2. Fengwu Sun, Yoshinobu Fudamoto, Xiaojing Lin, et al. (incl. **Yichen Liu**), “Slitless Areal Pure-Parallel High-Redshift Emission Survey (SAPPHIRES): Early Data Release of Deep JWST/NIRCam Images and Spectra in MACS J0416 Parallel Field,” *arXiv e-prints*, arXiv:2503.15587 (2025)
3. Grant Merz, Xin Liu, Samuel Schmidt, et al. (incl. **Yichen Liu**), “DeepDISC-photoz: Deep Learning-Based Photometric Redshift Estimation for Rubin LSST,” *arXiv e-prints*, arXiv:2411.18769 (2024)
4. Colin J. Burke, **Yichen Liu**, Charlotte A. Ward, et al., “DAVOS: Dwarf Active Galactic Nuclei from Variability for the Origins of Seeds: Properties of Variability-selected Active Galactic Nuclei in the COSMOS Field and Expectations for the Rubin Observatory,” *The Astrophysical Journal* 971, 140 (2024)
5. Grant Merz, **Yichen Liu**, Colin J. Burke, et al., “Detection, instance segmentation, and classification for astronomical surveys with deep learning (DEEPDISC): DETECTOR2 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

Magellan Baade, 6.5m/IMACS	4 nights (remote)	2024/09
CTIO Blanco, 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 lightning talk (IL, US) 2023/07

PRESENTATIONS IN MEETINGS AND CONFERENCES

- Poster, *245th Meeting of the American Astronomical Society* (MD, US): “GalfitT: Multi-epoch Image Deconvolution and Light Curve Extraction” 2025/01

- 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

- University of Illinois at Urbana-Champaign | Department of Astronomy IL, US
- Undergraduate Tutor for PHYS 213, 214, and ASTR 210 2023/01 - 2023/05
- 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

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|--------------------|-----------------------|----------------|
| Arshia Akhtarkavan | University of Arizona | 2024 - Present |
| 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