Xinlun CHENG

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EDUCATION

Department of Astronomy, University of Virginia   Aug 2019 – Present
➢ Graduate student; GPA: 4.0/4.0

Department of Physics, Tsinghua University   Aug 2014 – Jul 2018
➢ Bachelor of Science in Physics; Major GPA: 3.7/4.0; Rank: 10th/100
➢ Awarded Xuetang Elite Undergraduate Fellowship in School Year 2014, 2015, 2016, 2017

PUBLICATION

Cheng, X., Liu, C., Mao, S., & Cui, W. 2019, ApJL, 872, L1

Title: Ripple Patterns in In-plane Velocities of OB Stars from LAMOST and Gaia

RESEARCH EXPERIENCE

Graduate Research Assistant   Aug 2019 – Present
Advisor: Professor Steve Majewski
Location: University of Virginia
Exploring asymmetries in the kinematics of the Galactic disk with Gaia and APOGEE
- SDSS-IV Project 0722
- Converted observables to phase-space information
- Compared observation results to existing numerical simulation
- Built a simple warp model with Jeans equation
- Paper in preparation

Research Assistant   May 2018 – Mar 2019
Advisor: Professor Chao Liu
Location: National Astronomical Observatory of China
Galactic kinematics with OB stars from LAMOST-Gaia dataset
- Coded adaptive kernel density estimation (KDE) in Python
- Extracted kinematics structure from dataset with various methods
- Determined most possible theoretical explanation for observed ripples in radial velocity
- Paper published in ApJ Letter

Research Assistant   Sep 2017 – Jul 2019
Advisor: Professor Shude Mao
Location: Tsinghua University
Confirmation of strong lensing candidates using CFHT Megacam

- Refined the candidate list from previous research experience during June 2017 - September 2017
- Wrote observation proposal and designed details (exposure time, sequence of observation, etc.) of observation
- Applied and approved for CFHT Megacam observation (18BS06) in September 2018 as the Principle Investigator
- Processed Megacam imaging data (coadding, psf, photometry and foreground removal)
- Paper published in RAA

Undergraduate Research Assistant   Jun 2017 – Sep 2017
Advisor: Professor Jean-Paul Kneib
Location: École Polytechnique Fédérale de Lausanne
Searching for galaxy-galaxy strong lensing candidates in SDSS-III BOSS
- Improved previous spectroscopic searching method
- Data-processing code exceeds 10 thousand lines of Python
- Searched through the entire database (~1.5 million galaxies) within 12 hours
- Compiled a list of most possible strong lensing candidates

Undergraduate Research Assistant   Feb 2016 – May 2017
Advisor: Professor Charling Tao
Location: Tsinghua University
Searching for super-Eddington accreting black holes candidates in SDSS-III Reverberation Mapping campaign
- Built spectra decomposition programs from scratch in Python
- Extensive literature reading
- Compared Radius-Luminosity relationship with results from other researchers

Teaching

Teaching Assistant   Jan 2020 – Present
ASTR 3130 Observational Astronomy
University of Virginia
Course instructor: Professor Mike Skrutskie

Lab Operator   Sep 2019 – Dec 2019
Constellation quiz night-lab
University of Virginia
Lab operator for constellation quiz night-lab. In charge of 10pm-11pm session every Monday and Thursday.

Teaching Assistant   Sep 2019 – Dec 2019
ASTR 1210 Introduction to the Night Sky and Solar System
University of Virginia

Course instructor: Professor Ed Murphy

Teaching Assistant   Sep 2019 – Dec 2019

ASTR 1210 Introduction to the Night Sky and Solar System

University of Virginia

Course instructor: Professor Zhi-Yun Li

Public Outreach

Telescope Operator   Nov 2019

McCormick Public Night

Took part in McCormick public night on Nov 3. In charge of operating 6-inch Alvin-Clack telescope and Meade 14-inch LX200, and observation target selection for the night.

Constellation Tour Guide   Oct 2019

DSBK star party

Took part in star party organized by Darker Sky Brighter Kids (DSBK) on Oct 28. In charge of giving constellation tour to about 500 audiences. Also helped with telescope setting-up.

Kernel Member   Jan 2015 – Present

Tsinghua Student Astronomy Association

Kernel member of Tsinghua Student Astronomy Association

- Operated the Association with other kernel members in the Management Council
- Organized on-campus and off-campus stargazing/telescope observations
- Led groups of students through multiple stargazing trips
- Organized public night for university observatory
- Shared stargazing and astrophotography knowledge with members and general public through online tutorials and offline lectures

SKILLS AND OTHERS

Programming: Experience in both scientific computation and software engineering

➢ Multiple programming languages: Python, C++, Qt, Fortran, Java, Linux bash

➢ Developed reservation and check-in program for campus observatory

➢ Developed course selection helper program for better chance of obtaining hot courses

➢ Currently maintaining a planetarium software on Android, Stellarium

Astrophotography

➢ Planets, nebula and galaxies

➢ Star-trails

Language Skills

➢ Chinese (native), English (fluent)

- GRE 332+4.5: Verbal 162, Quantity 170, Writing 4.5
- TOEFL 114: Listening 30, Reading 30, Speaking 25, Writing 29