

Harry Van Der Ark

+1 332 234 3443 ♦ hev2109@columbia.edu

EDUCATION

Columbia University, School of Professional Studies
Visiting Post-baccalaureate student
Relevant Coursework: ASTR3986UN - Astrostatistics

Sep '26 - current

Columbia University, Columbia College
Bachelor of Arts. Physics Major, Mathematics Concentration
4-year GPA: 3.5, Junior + Senior GPA: 3.64
Relevant/Additional Coursework: ASTR3273UN - High Energy Astrophysics

Aug '22 - May '26

RESEARCH EXPERIENCE

Columbia Astrophysics Laboratory, Columbia University
Advisor: Dr. Kaya Mori, Research Scientist and Principal Investigator

Feb '24 - Current

- Led the analysis of an extensive Chandra survey of the Galactic Center, where I developed a Maximum Likelihood Estimation tool that can detect and verify sources in high background, low exposure observations.
- Confirmed the first ever observation of Non-thermal Bremsstrahlung emitting Compact Cloud Clumps, a novel class of molecular cloud substructure, on the shock front of a supernova remnant. This involved developing new Chandra analysis techniques to differentiate point sources from the smallest scale extended sources.

Center for Astrophysics, Harvard University
Advisor: Dr. Rafael Martínez-Galarza, Deputy Director of AstroAI

May '25 - Aug '25 &
Jul '26 - Current

- Visiting summer researcher at the Harvard Center for Astrophysics on methods behind the Chandra Source Catalog processing pipeline from the CSC team.
- An international collaboration developing a neural network to detect patterns in Chandra observation background noise and reduce the S/N threshold needed to identify sources.

PUBLICATIONS

Extensive Chandra X-Ray Catalog of Galactic Center using 1.65 Ms of New Exposure

Author List: Van Der Ark, H., Mandel, S., Mori, K., Ponti, G., Martínez-Galarza, J.R., Evans, I., Hong, J., Zhang, H., Bao, T., Hailey, C.
Expected Dec '26

Fully Automated Source Detection and Validation Pipeline for X-ray Observations

Author List: Van Der Ark, H., Mandel, S., Mori, K., Ponti, G., Martínez-Galarza, J.R., Evans, I., Hong, J., Zhang, H., Bao, T., Hailey, C.
Expected Dec '26

High Resolution Chandra X-Ray Survey of a Middle-Aged Supernova Remnant G22.7-0.2 interacting with Molecular Clouds

Author List: Van Der Ark, H., Mori, K., Hailey, C.
In-Prep Oct '26

SKILLS

Computer:

- Proficient computer languages: Python, Bash, SQL, HTML, CIAO
- Other proficient software: LaTeX, DS9, Microsoft suite

Laboratory:

- Experience with sensitive electronics and equipment e.g. crystal scintillators, photomultiplier tubes, cathode ray tubes, oscilloscopes, high powered vacuum tubes
- Experience handling high voltage electronics and radioactive materials

HONORS AND AWARDS

- Dean's List for academic excellence: Spring 2026, Fall 2025, Spring 2025, Fall 2023
- Valedictorian for highest Australian Tertiary Admission Rank (ATAR) in my graduating class, 2021

PROFESSIONAL EXPERIENCE

Columbia Astrophysics Laboratory, Columbia University

Jun '26 - Jun '27

- Full-time Research Staff Assistant for Mori research group, serving as the group's Chandra expert, writing NASA and Roman proposals, and leading several first author papers.

HighSchoolTutors

Jan '22 - Aug '22

- Professional Tutor for high school seniors, teaching Physics, Chemistry, Mathematics and Computer Science. Working for HighSchoolTutors.com approx. 20 hours per week both online and in person.

CONFERENCES

Harvard University, Center for Astrophysics

Aug '26

Chandra Dynamic Universe Conference - [Presented Poster](#) and Flash Talk

Harvard University, Center for Astrophysics

Jul '25

AstroAI Workshop

University of Massachusetts

May '25

Chandra/CIAO Workshop