

ALAN BAO-HUY NGUYEN

alan.nguyen@yale.edu

I am a PhD student in Physics at Yale University. My research focuses on the large scale structure of the universe, baryon acoustic oscillations (BAO), galaxy catalogues, and novel statistical methods.

EDUCATION

PhD	Yale University , Physics Research: Cosmology, Large Scale Structure, Baryon Acoustic Oscillations, Redshift Space Distortions Advisor: Nikhil Padmanabhan	Expected 2029
MSc	University of Waterloo , Physics Thesis: <i>Novel Techniques for the Calibration of Systematics in Next Generation Galaxy Surveys</i> Advisor: Will J. Percival	August 2024
BSc	University of Manitoba , Physics & Astronomy Awarded Allen Medal in Physics Minored in Economics and Mathematics	June 2022

RESEARCH EXPERIENCE

University of Waterloo , Waterloo, ON	Nov 2023 to Present
MSc. Project	
<ul style="list-style-type: none">Supervisors: Will J. Percival, Marco BoniciProject Description: A cutting edge statistical method and posterior predictive check with the Leave One Out-Probability Integral Transform [paper link]	
University of Waterloo , Waterloo, ON	Sep 2022 to Nov 2023
MSc. Project	
<ul style="list-style-type: none">Supervisors: Will J. Percival, Elena MassaraProject Description: Novel methods for decontaminating large scale structure catalogues, BAO analysis for constraining cosmological parameters [paper link]	
University of Manitoba , Winnipeg, MB	Sep 2021 to Jun 2022
Undergraduate Honours Thesis	

- Supervisor: Samar Safi-Harb
- Thesis Title: *The Search for Slow Pulsars: XMM-Newton X-Ray Studies of Central Compact Objects*

University of Manitoba, Winnipeg, MB May 2021 to Aug 2022

Research Assistant

- Supervisor: Samar Safi-Harb
- Project Description: X-Ray Spectroscopy and Timing of G309.92-2.51
[*in preparation*]

University of Manitoba, Winnipeg, MB May 2019 to Aug 2020

Research Assistant

- Supervisor: Chris O’Dea
- Project Description: A census of ionised gas outflows in active galaxies

TEACHING EXPERIENCE

Yale University, New Haven, CT Aug 2024 to Dec 2024

Teaching Fellow, Department of Physics

- Duties included marking and proctoring exams and assignments, supervising final projects, holding office hours, and assisting with hands-on class exercises
- Courses: PHYS 378 (Introduction to Scientific Computing & Data Science)

University of Waterloo, Waterloo, ON Sep 2022 to Apr 2023

Teaching Assistant, Department of Physics & Astronomy

- Duties included marking and proctoring exams and assignments
- Courses: PHYS 275 (Planets)
PHYS 175 (Introduction to the Universe)

University of Manitoba, Winnipeg, MB May 2021 to Jun 2022

Teaching Assistant, Department of Physics & Astronomy

- Duties included marking and proctoring exams and assignments, and administering tutorial sessions
- Courses: MATH 1300 (Vector Geometry and Linear Algebra)
MATH 1240 (Elementary Discrete Mathematics)

HONOURS AND AWARDS

Canadian Student Participation in Space Conferences Grant	2024
President's Graduate Scholarship	2023
Ontario Graduate Scholarship	2023
Science Graduate Student Award	2022, 2023
Marie Curie Graduate Student Award	2022, 2023
Allen Medal in Physics	2022
1st Place & Student's Choice Undergraduate 3MT	2022
Professor Robert J. Lockhart Memorial Prize	2021, 2022
Centennial Scholarship in Physics	2020, 2021
NSERC USRA	2020, 2021
H.L. Verrall Family Scholarship in Physics	2020
C.P. Loewen Family Foundation Scholarship in Physics	2020
President's Scholar	2018-2022

PUBLICATIONS

1. **Nguyen, A. B. H.**, Bonici, M., McGee, G., & Percival, W. J. (2024). LOO-PIT: A sensitive posterior test. *arXiv:2410.03507*
2. **Nguyen, A. B. H.**, Massara, E., & Percival, W. J. (2024). Self-calibrating BAO measurements in the presence of small displacement interlopers. *Journal of Cosmology and Astroparticle Physics*, 2024(04).
<https://doi.org/10.1088/1475-7516/2024/04/008>

PRESENTATIONS

CASCA AGM Parallel Talk, "The Effects of Interlopers on Next-Generation Galaxy Surveys," June 2024, Toronto.

Roman GRS-PIT Team Meeting Talk, "Interlopers in Roman Surveys," May 2024, Pasadena.

PROFESSIONAL AFFILIATIONS

CASCA , Graduate Student Member	Jun 2024 to Present
Roman GRS-PIT , Team Member	Feb 2024 to Present
DESI , Member	Sep 2022 to Present

COMMUNITY SERVICE

Waterloo Centre for Astrophysics

Sep 2023 to Aug 2024

Planetarium Presenter

- Gave planetarium shows to grade school students in the “Astro Bubble”

Organization of Physics Undergraduate Students

May 2020 to May 2022

Treasurer

- Oversaw all purchasing and reimbursement for organisation events
- Managed organisation finances including bank account, budgets and OPUS bursary

University of Manitoba Chess Club

Sep 2018 to Sep 2022

President and Founder

- Organised weekly in-person/online meetings, tournaments for all members of the University of Manitoba Community
- Participated in the Canadian University Chess Championship 2021, winning the bronze division as a team

LANGUAGES

English: Native Language

Vietnamese: Elementary Proficiency

French: Elementary Proficiency

SKILLS AND QUALIFICATIONS

Proficiency in Python and relevant packages: numpy, astropy, pandas, matplotlib, etc.

Proficiency in Julia

Proficiency in LaTeX, Microsoft Office Suite, Photoshop and other various multimedia tools

OTHER

World Taekwondo Federation Second Degree Black Belt
Conservatory Canada Diploma in Piano Performance (ACCM)

[Updated November 16, 2024]