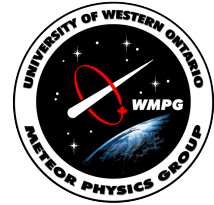


# Ian CHOW

## MSc. Astronomy Candidate | University of Western Ontario

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## 🔍 RESEARCH INTERESTS

Meteors, Exoplanets, Astrostatistics, Machine Learning, Dynamics, Numerical and Computational Methods

## 🎓 EDUCATION

PRESENT Sep. 2023	<b>University of Western Ontario</b> MSc. ASTRONOMY Cumulative GPA of <b>4.00/4.00</b> <b>Thesis</b> : Orbital and Physical Properties of Decameter-Sized Earth Impactors SUPERVISOR : Prof. Peter G. Brown	London, ON, Canada
May 2023 Sep. 2018	<b>University of Toronto</b> HbSc. ASTRONOMY & PHYSICS SPECIALIST, STATISTICS MAJOR, MATHEMATICS MINOR Graduated with High Distinction – Cumulative GPA of <b>3.60/4.00</b> <b>Astronomy Thesis</b> : Analyzing Radial Velocity Data from the Resonant Planetary System HD 45364 SUPERVISORS : Dr. Sam Hadden, Prof. Hanno Rein <b>Statistics Thesis</b> : Probabilistic Dimensionality Reduction Methods for Stellar Chemodynamics SUPERVISOR : Prof. Joshua S. Speagle	Toronto, ON, Canada

## ADDITIONAL RESEARCH POSITIONS

Aug. 2023 May 2023	<b>Dunlap Institute for Astronomy &amp; Astrophysics, University of Toronto</b> SUMMER UNDERGRADUATE RESEARCH ASSISTANT <b>Project</b> : Understanding the impact of Bayesian inference on ultra-light axion limits SUPERVISOR : Dr. Keir Rogers	Toronto, ON, Canada
Aug. 2022 May 2022	<b>Canadian Institute for Theoretical Astrophysics (CITA)</b> SUMMER UNDERGRADUATE RESEARCH FELLOW <b>Project</b> : Modelling Migration Scenarios of Resonant Planets Using Radial Velocity Data SUPERVISORS : Dr. Sam Hadden, Prof. Hanno Rein	Toronto, ON, Canada

## 📄 PEER-REVIEWED PUBLICATIONS

### FIRST AUTHOR

1. **Chow, I.**, & Brown, P.G. “Decameter-Sized Earth Impactors – I : Orbital Properties”, submitted to *Icarus*.
2. **Chow, I.**, & Hadden, S. “Influence of Modeling Assumptions on the Inferred Dynamical State of Resonant Systems : A Case Study of the HD 45364 System”, submitted to *ApJ*.

## 🏆 AWARDS, SCHOLARSHIPS, FELLOWSHIPS & HONOURS

2024-2025	<b>Ontario Graduate Scholarship</b> , \$15,000 CAD	University of Western Ontario
2023-2024	<b>Western Graduate Research Scholarship</b> , \$8,257 CAD	University of Western Ontario
2023	<b>SURP Poster Competition Award</b> , \$50 CAD	University of Toronto
2023	<b>Summer Undergraduate Research Program (SURP) Fellowship</b> , \$9,980 CAD	University of Toronto
2022	<b>Summer Undergraduate Research Fellowship (SURF)</b> , \$9,500 CAD	CITA
2021-2022	<b>Smith Solis Research Scholarship in Astronomy and Astrophysics</b> , \$1,250 CAD	University of Toronto
2020-2023	<b>Dean's List Scholar</b> , honour	University of Toronto

## TEACHING EXPERIENCE

I have instructed undergraduate students in the following courses. My duties included delivering lectures in class, leading in-person tutorials and help centres, running midterm viewing sessions, proctoring, grading and reviewing exams, supervising lab sessions and grading lab reports.

2024	<b>Astronomy 1021 : General Astronomy</b> , Teaching Assistant	<i>University of Western Ontario</i>
2023-2024	<b>First-Year Physics Labs</b> , Teaching Assistant (x2)	<i>University of Western Ontario</i>
2024	<b>Physics 1402 : Physics for Engineering Students II</b> , Teaching Assistant	<i>University of Western Ontario</i>
2023	<b>Physics 1201 : Physics for the Sciences I</b> , Teaching Assistant	<i>University of Western Ontario</i>

## SELECTED PROFESSIONAL EXPERIENCE

Sep. 2020 Jun. 2020	<b>Innovere Medical</b> SOFTWARE DEVELOPER	<i>Markham, ON, Canada</i>
	<ul style="list-style-type: none"><li>➤ Automated detection of dropouts in time-series audio data from an MRI scanner's wireless audio system using power spectrum analysis in MATLAB and Python, eliminating 20+ hours of work weekly</li><li>➤ Developed and tested TechSmart, an in-house multimedia app for patient use during MRI scans, with company's software development team</li></ul>	
	<span>MATLAB</span> <span>Python</span> <span>Signal Processing</span> <span>Software Development</span>	
Aug. 2019 Jun. 2019	<b>Plantiga Technologies</b> SOFTWARE DEVELOPER	<i>Vancouver, BC, Canada</i>
	<ul style="list-style-type: none"><li>➤ Developed methods to compute physical fitness heuristics from time-series acceleration (g-force) data, using signal processing techniques like digital filtering and convolution in Python (SciPy, Pandas) to improve detection of foot impacts</li><li>➤ Field-tested and validated hardware such as sensor shoe insoles that track movement</li><li>➤ Acquired data from company partners such as physiotherapy clinics, universities (University of British Columbia, Simon Fraser University), and sports organizations (Houston Rockets, US Tennis Association)</li><li>➤ Wrote documentation of company products and services for clients</li></ul>	
	<span>Python</span> <span>Signal Processing</span> <span>Biomechanics</span> <span>Data Analytics</span>	
Aug. 2017 Jun. 2017	<b>Synced Review</b> RESEARCH INTERN	<i>Toronto, ON, Canada</i>
	<ul style="list-style-type: none"><li>➤ Conducted literature review focusing on advancements in reinforcement learning used in adversarial-search board and video game artificial intelligence programs for a company report</li><li>➤ Worked with company team to research and edit review articles on industry trends in machine learning and robotics technology</li></ul>	
	<span>Machine Learning</span> <span>Artificial Intelligence</span> <span>Literature Review</span>	

## CONFERENCE PRESENTATIONS

<b>2024 CASCA AGM</b>	"Properties of Decameter Earth Impactors." Poster.	<i>Toronto, ON, Canada</i>
<b>2024 DDA 55 Meeting</b>	"The Dynamical Origin of Decameter Earth Impactors." Contributed talk.	<i>Toronto, ON, Canada</i>
<b>2023 CASCA AGM</b>	"Identifying birth environments of isolated stars : a probabilistic dimensionality reduction model for stellar chemical abundances." Poster.	<i>Penticton, BC, Canada</i>
<b>2022 Planet Day</b>	"Modelling Migration Scenarios of Resonant Planets Using Radial Velocity Data." Contributed talk.	<i>Toronto, ON, Canada</i>

## DEPARTMENTAL PRESENTATIONS & SEMINARS

<b>2023 SURP Poster Symposium</b>	"Understanding the impact of Bayesian inference on ultra-light axion limits." Poster.	<i>University of Toronto</i>
<b>2022 SURF Presentation</b>	"Modelling Migration Scenarios of Resonant Planets Using Radial Velocity Data." Invited talk.	<i>University of Toronto</i>



## LEADERSHIP, VOLUNTEERING & EXTRACURRICULAR EXPERIENCE

PRESENT Jun. 2024	<b>Hume Cronyn Memorial Observatory</b> VOLUNTEER <ul style="list-style-type: none"><li>Volunteered at astronomy public nights attended by 80+ visitors weekly at the University of Western Ontario's Cronyn Observatory</li></ul>	<i>London, ON, Canada</i>
Jun. 2024 Sep. 2023	<b>Consensus Trivia</b> QUESTION WRITER/EDITOR <ul style="list-style-type: none"><li>Wrote and edited trivia questions for <a href="#">Consensus Trivia</a>, a federally registered not-for-profit organization that runs team-based trivia tournaments for 80+ high school and collegiate teams across Canada</li><li>Moderated and kept score for tournament games as a staffer</li></ul>	
May 2023 Jan. 2019	<b>University of Toronto Academic Trivia Club</b> VICE PRESIDENT, COMPETITOR, TOURNAMENT ORGANIZER & QUESTION WRITER/EDITOR <ul style="list-style-type: none"><li>Elected Vice President of the University of Toronto's Academic Trivia Club during the 2020-2021 and 2021-2022 academic years organizing twice-weekly practices and social events, managing club Facebook group and Discord server with 300+ members, and moderating practices and tournament games</li><li>Represented the University of Toronto at 30+ trivia (quiz bowl) tournaments across Canada and the U.S. as a competitor with several top finishes at North American championships, such as leading the team to fourth place at the 2022 Division II Intercollegiate Championship Tournament in Chicago</li><li>Organized and directed several collegiate and high school tournaments, including the 2021 University of Toronto Collegiate Novice and the 2022 University of Ottawa ACF Fall tournaments, played by 30+ collegiate teams in total across Canada and the U.S.</li><li>Wrote and edited trivia questions across a wide range of academic disciplines (including astronomy and physics) for 2022 WORKSHOP, 2023 Canadian Novice, and 2024 MRNA III, collegiate tournaments played by 80+ teams in total across Canada, the U.S., and the U.K.</li></ul>	<i>Toronto, ON, Canada</i>

## MEDIA EXPERIENCE

Oct. 2023	<b>SURP Student Spotlight</b> Interview	<i>Dunlap Institute for Astronomy &amp; Astrophysics, University of Toronto</i>
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## PROJECTS

<b>FASANO-FRANCESCHINI-TEST</b>  <a href="https://github.com/wmpg/fasano-franceschini-test">github.com/wmpg/fasano-franceschini-test</a> A Python implementation for a multidimensional extension of the two-sample Kolmogorov-Smirnov test proposed by <a href="#">Fasano &amp; Franceschini (1987)</a> . <span>Python</span>	2024
<b>HERE I STAND CALCULATOR</b>  <a href="https://ia-chow.github.io/Projects/HIS/">ia-chow.github.io/Projects/HIS/</a> An online calculator tool to compute the odds of various outcomes for the strategy board game <a href="#">Here I Stand</a> , written to familiarize myself with HTML, CSS and JavaScript. Hosted on a personal website. <span>HTML</span> <span>CSS</span> <span>JavaScript</span>	2020

## SKILLS

<b>Programming</b>	Python (NumPy, SciPy, Pandas, Matplotlib, Keras/TensorFlow, scikit-learn), MATLAB, R (ggplot, dplyr), HTML, CSS, JavaScript (Node.js)
<b>Software</b>	$\LaTeX$ , Git/GitHub, Jupyter Notebook, Anaconda, R Suite, Bash, Linux (ssh), Microsoft Excel
<b>Languages</b>	English (fluent), French (intermediate), Cantonese (spoken)