

Tristan Parmerlee

tparmerlee@luc.edu | 0009-0004-5934-9650 | tparmerlee.github.io

EDUCATION

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| Loyola University Chicago Bachelor of Science in Physics with Computer Science and Mathematics – Dean’s List | Aug. 2024 – Present <i>Chicago, IL</i> |
| Drake University Bachelor of Science in Physics, Astronomy, and Mathematics – Dean’s List | Aug. 2022 – May 2024 <i>Des Moines, IA</i> |

RESEARCH EXPERIENCE

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| Northwestern CIERA REU Northwestern University | June 2025 – Present <i>Evanston, IL</i> |
| MISSFIT Student Research Lead Drake University | Jan. 2023 – July 2024 <i>Des Moines, IA</i> |

• Conducted research focused on stellar collisions, dense galactic clusters, and machine learning.
• Participated in multiple career development programs, such as RCTP (research communication training program) and Python workshops.
• Prepared a writing deliverable, website, and poster related to project results.
• Future research ongoing during Fall 2025.

• Developed the artificial gravity project for the student-led MISSFIT (magneto-ionization spacecraft shielding for interplanetary travel) collaboration.
• Designed 3-D printed proof of concept for a new approach to artificial gravity generator.
• Organized team schedule and meetings and designated projects to other members.
• Assisted in work of other subgroups, such as the computational and biological subgroups.

RELAVENT COURSE WORK

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| Loyola University Chicago | Aug. 2024 – Present |
| • Freshman Projects, Electronics, Optics, Theoretical Mechanics, Electricity and Magnetism, Thermal Physics and Statistical Mechanics, Quantum Mechanics, General Relativity and Cosmology, Undergraduate Research | |
| • Introduction to Probability, Introduction to Real Analysis I, Introduction to Complex Analysis, Abstract Algebra, Advanced Abstract Algebra | |
| • Introduction to Computing Tools, Introduction to Object-Oriented Programming, Data Structures I and II, Design and Analysis Computer Algorithms | |
| Drake University | Aug. 2022 – May 2024 |
| • Introduction to Physics I and II, Modern Physics, Introduction to Methods in Physics, Error Theory, Descript Astronomy, Astronomical Techniques | |
| • Calculus I-IV, Linear Algebra, Ordinary and Partial Differential Equations, Math Reasoning (Discrete Math), Numerical Analysis | |

PUBLICATIONS AND PRESENTATIONS

- Parmerlee, T.C., Rose, S.C., González Prieto, E., Lombardi, J.C., Gibson, C., O’Conner, C.E., Kiroğlu, F., Kremer, K., and Rasio, F.A., “Using Machine Learning to Model Stellar Collisions in the Galactic Center”, in prep, 2026
- González Prieto, E., Lombardi, J.C., Rose, S.C., Gibson, C., O’Conner, C.E., Starkenburg, T., Kiroğlu, F., Kremer, K., Parmerlee, T.C., and Rasio, F.A., “Machine Learning Methods for Stellar Collisions”, in prep, 2026
- S. Chen, M. Holcomb, E. Jackovin, X. Kwa, J. Kilburg, A. Lobo, J. Messerli-Wallace, E. Miller, S. Mortenson, T. Parmerlee, G. Summers, M. Tentis, K. Weber, M. Viscarra; T. Kutnink (Mentor), M. Lutrell (Mentor), A. Petridis (Mentor), “MISSFIT: Artificial Gravity Generation through High-Frequency Oscillations”, APS Poster Presentation & ISGC Undergraduate Research Symposium Presentation, 2024

AWARDS, FELLOWSHIPS, AND HONORS SOCIETIES

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| Alpha Sigma Nu Honor Society Induction | Loyola University Chicago, 2025 |
| Rataj Mathematics Scholarship | Loyola University Chicago, 2025-2026 |
| Loyola University Chicago Mulcahy Fellowship (Declined) | Loyola University Chicago, 2025-2026 |
| Sigma Pi Sigma (Physics Honor Society) | Loyola University Chicago, 2025 |
| Father Gerst Memorial Award | Loyola University Chicago, 2024-2025 |
| Putnam Competition Rank of 2566 out of 3857 | MAA Putnam Competition, 2023 |
| ISGC Undergraduate STEM Research Scholarship | Iowa Space Grant Consortium, 2023-2024 |
| Drake Physics Prize Runner-Up Scholarship | Drake University, 2022-2024 |

OUTREACH, LEADERSHIP, AND TEACHING EXPERIENCE

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| LUC Mathematics Supplemental Instructor Loyola University Chicago | Jan. 2026 – May 2026 |
| <ul style="list-style-type: none">Worked as a supplemental instructor for Applied Calculus I.Created lesson plans and held 3-50 minute sessions per week.Attended all class sessions. | |
| LUC Physics Club President Loyola University Chicago | Aug. 2025 – Present |
| <ul style="list-style-type: none">President of LUC Physics Club for the 2025-2026 school year.Organized events for members of the LUC Physics Department. | |
| LUC Physics Department Homework Grading Loyola University Chicago | Aug. 2025 – Present |
| <ul style="list-style-type: none">Worked as a student grader for Electricity and Magnetism.Graded all student homework assignments under supervision of course instructor. | |
| Physics Department Office Assistant Loyola University Chicago | Aug. 2025 – Present |
| <ul style="list-style-type: none">Worked as a office assistant within the physics department building.Helped maintain faculty resources.Handled delivery of mail to faculty members. | |
| Physics Department Mentorship Program Loyola University Chicago | Aug. 2025 – Present |
| <ul style="list-style-type: none">Participated as a underclassman mentor through the physics department.Met throughout the semester with my mentee to give advice based on my experiences. | |
| LUC Mathematics Peer Tutor Loyola University Chicago | Aug. 2025 – Dec. 2025 |
| <ul style="list-style-type: none">Worked as a math tutor for the LUC Tutoring Center.Assisted students with math courses, including calculus, linear algebra, discrete math, and ordinary differential equations. | |
| Physics Club Tutor Loyola University Chicago | Aug. 2024 – Present |
| <ul style="list-style-type: none">Volunteered as a physics tutor for 100-level courses through Physics Club.Assisted with organization of tutoring for 2025-2026 school year. | |
| Drake University Mathematics Tutor Drake University | Jan. 2024 – May 2024 |
| <ul style="list-style-type: none">Paid math tutor for the Drake University Math Department.Completed a preparatory semester-long course before becoming eligible to tutor.Assisted students in calculus and linear algebra courses. | |
| Drake Municipal Observatory Volunteer Drake University | Aug. 2022 – May 2024 |
| <ul style="list-style-type: none">Volunteer at the Drake Municipal Observatory for weekly public nights.Set up telescopes for public viewings and provided informational speeches to general public about night sky objects. | |

TECHNICAL SKILLS

Languages: Python, Java, C/C++, C#, Fortran, LaTeX, Unix, Red Hat Linux, PyTorch, Scikit-Learn
Developer Tools: Git, VS Code, PyCharm, IntelliJ, SLURM
Engineering Tools: Fusion360, UltimakerCura, PrusaSlicer, LTSpice

EXTRACURRICULAR ACTIVITIES

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| Loyolacappella Loyola University Chicago | Aug. 2024 – Present |
| <ul style="list-style-type: none">Member of Loyola University Chicago's Premier All-Voice Acappella group.Served as Treasurer for the 2025-2026 school year.Hosted multiple on-campus performances for students. | |
| Loyola University Choral Loyola University Chicago | Aug. 2024 – Present |
| <ul style="list-style-type: none">Member of Loyola University's All-Voice Choir.Served as section leader for Tenor II's.Performed at multiple on campus concerts for students. | |
| Brocal Chords Drake University | Aug. 2023 – May 2024 |
| <ul style="list-style-type: none">Member of Drake University's Premier Low-Voice Acappella group.Performed at multiple events both on and off campus. | |
| Drake Choir & Community Choir Drake University | Aug. 2022 – May 2024 |
| <ul style="list-style-type: none">Member of Drake Choir and Drake University Community ChoirPerformed at multiple concerts both on and off campus. | |