Zach Gillis

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EDUCATION

University of Chicago   Chicago, IL
B.A. Physics, B.S. Mathematics   *Sep. 2021 – June 2025*
- GPA: 3.8/4.0
- Quad Undergraduate Research Scholar
- Dean's List

Walter Payton College Preparatory High School   Chicago, IL
High School Diploma   *Sep. 2017 – June 2021*
- GPA: 4.0/4.0
- SAT: 1580

EXPERIENCE

Research Assistant   July 2023 – Present
ATLAS Group – University of Chicago / CERN   *Chicago, IL*
- Working in UChicago's arm of the ATLAS experiment at CERN
- Developing computing framework to analyze cubic and quartic Higgs self-interaction

Research Assistant   Oct. 2022 – Present
Zhong Quantum Lab – University of Chicago, Pritzker School of Molecular Engineering   *Chicago, IL*
- Working in lab focused on quantum engineering, specifically quantum networks and optics
- Designed a loop-gap resonator for microwave to optical quantum transduction to enable quantum networking
- Using resonator in an electron spin resonance spectroscopy setup to examine erbium-doped ceramics

Math Teacher and Curriculum Planner   Feb. 2022 – Present
Math Circles of Chicago   *Chicago, IL*
- Responsible for teaching math and statistics classes for high school students
- Working with teaching assistants and administrators to streamline current curriculum

Research Assistant and Summer Student   June 2022 – Aug. 2022
National Radio Astronomy Observatory (NSF REU Site)   *Charlottesville, VA*
- Selected to competitive internship focused on radio astronomy, radio telescope design, astrophysics, and astrochemistry
- Completed project enabling 32-fold reduction in required computing resources for the Next Generation VLA (ngVLA)
- Helped create Python package and author the ngVLA computation whitepaper

Research Intern   June 2021 – Aug. 2021
Northwestern University, Lurie Cancer Center (through ResearcHStart)   *Chicago, IL*
- Selected to competitive research internship program focused on cancer research and bioinformatics
- Completed a project using R on exercise-induced gene expression and the pathways perturbed by those changes
- Presented project at research symposium and awarded best poster among 27 ResearcHStart participants

PROJECTS & PRESENTATIONS

"Time Averaging Limits and Baseline Dependent Averaging for the ngVLA."   May 2023
Next Generation Very Large Array Memo Series, Computing Memo 8

"Designing a Microwave Cavity to Enable Magneto-Optic Transduction in Quantum Networking."   April 2023
University of Chicago Undergraduate Research Sympoium

"Utilizing Baseline-Dependent Averaging in the ngVLA."   September 2022
National Radio Astronomy Observatory Summer Assistantship

"Post-Exercise Regulation of the AP-1 Transcriptional Program."   August 2021
ResearcHStart at the Robert H. Lurie Comprehensive Cancer Center of Northwestern University

ACTIVITIES

UChicago Robotics | *Team Member*   Oct. 2022 – Present
- Member of selective team competing in national robotics competitions

UChicago Science Olympiad | *Community Outreach Director, formerly Technology Coordinator*   Sep. 2021 – Present
- Organizes community outreach workshops with local public schools and events for visiting teams

TECHNICAL SKILLS

Languages: Python, R, Java, JavaScript, Swift, HTML/CSS
Programs: Ansys HFSS, Fusion 360
Libraries: NumPy, SciPy, pandas, Matplotlib, Xarray, Dask, DESeq2, Tensorflow, Keras