B. PARAZIN | Curriculum Vitae

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GitHub • LinkedIn

Education

McGill University — 8/2023 - Present
PhD candidate in Earth and Planetary Sciences — Montreal, QC

Northeastern University — 8/2019 - 5/2023
BS in Physics and BS in Mathematics — Boston, MA
CGPA: 3.98

Experience

PhD Student — 8/2023 - Present
McGill EPS; Gomez Geodynamics Group; PI: Natalya Gomez — Montreal, QC
Performing research on ice sheet evolution and interactions with other Earth systems. Programming methods for coupling models in FORTRAN and Python. Mentoring students and grading papers as part of TA duties. TAed Natural Disasters in fall 2023 and Elementary Earth Physics in fall 2024

Undergraduate Research Co-op — 10/2022 - 12/2022
Northeastern MES; Earth Surface Systems Lab; PI: Sam Munoz — Nahant, MA
Imported historical weather data sets into NCAR's Weather Research and Forecasting Model to simulate the meteorological causes of major flooding events on the Mississippi and Missouri Rivers. Performed analysis on the relationship between Pacific sea-surface temperature and Mississippi low-flows

Undergraduate Research Assistant — 1/2022 - 6/2022
Northeastern MES; Earth Surface Systems Lab; PI: Sam Munoz — Nahant, MA
Performed analysis of sediment size distribution and ^{210}Pb concentration from sediment cores to identify floods before the observational record. Wrote a program to automate using ^{210}Pb and ^{137}Cs concentration measurements to determine the age of recently deposited sediments

Visting Undergraduate Researcher — 7/2021 - 12/2021
University of Minnesota; William I. Fine Theoretical Physics Institute; PI: Michael Coughlin — Minneapolis, MN
Used mixed-integer linear programming optimization to create telescope schedules for gravitational wave detection follow-up. Assisted in several other projects relating to multimessenger astronomy

Undergraduate Research Assistant — 9/2020 - 12/2020
Northeastern MES; Earth Surface Systems Lab; PI: Sam Munoz — Nahant, MA
Analyzed US Geologic Survey historical weather datasets using Python to determine the causes of the 1844 flood of record on the Mississippi and Missouri Rivers and explore correlations between Mississippi River Basin flood patterns and El Nino trends

Skills

Programming Language — **Experienced:** Python | Latex | FORTRAN **Familiar:** Java | Javascript | HTML | CSS
Frameworks & Tools — Git | Windows | Linux | Jupyter | Vim | Mixed Integer Linear Programming
Libraries — Matplotlib | Pandas | Numpy | Scipy | Astropy | Xarray

Honors & Awards

TOMLINSON DOCTORAL FELLOWSHIP 7/2023
McGill University
McGill's most prestigious internal graduate student award, the Tomlinson Doctoral Fellowship is awarded to 10 outstanding incoming PhD students each year. Provides $35,000 CAD/year, renewable twice

GRADUATION SUMMA CUM LAUDE 5/2023
Northeastern University
Awarded to undergraduate students with a GPA above 3.85/4.0 upon completing their degree

NSF GRADUATE RESEARCH FELLOWSHIP PROGRAM (DECLINED) 3/2023
National Science Foundation
National Science Foundation scholarship fellowship designed to support outstanding graduate students who have demonstrated the potential to be high achieving scientists and engineers. Declined because it only supports students at US-based institutions

BARRY GOLDWATER SCHOLARSHIP 3/2022
Barry Goldwater Scholarship Foundation
American national Scholarship awarded to about 300 sophomores and juniors each year who show exceptional promise in their chosen field of research

Service

EQUITY AND DIVERSITY COMMITTEE MEMBER 4/2024-Present
AGSEM-AEEDEM Montreal, QC
Member of the 3-person Equity and Diversity Committee of AGSEM, the association of graduate students employed at McGill. Represented AGSEM at a review of McGill's Policy on Harassment and Discrimination. Worked to improve protections for transgender graduate students at McGill. Investigated and settled claims of Discrimination within AGSEM. Reformed Equity and Diversity Committee rules to make the committee more proactive in addressing inequities within the union. Committee chair since 5/2025

TRAIL MAINTENANCE VOLUNTEER 5/2023 - 8/2023
Trustees of Reservations Boston, MA
Weekly volunteering at with the Trustees of the Reservations' Charles River Valley properties, assisting with trail maintenance through clearing culverts, digging water bars, constructing stairs, and cleaning walkways

Publications

PARAZIN, B., GOMEZ, N., HOGGARD, M. J., RICHARDS, F., COULSON, S., MITROVICA, X. J. GRL
Ice Sheets Without Dynamic Topography Accepted; In prep

MUNOZ S., DEE, S., LUO, X., HAIDER, M., O'DONNELL, M., PARAZIN B., REMO, W. Environ. Res.: Climate
Mississippi River low-flows: context, causes, and future projections 2023

MUNOZ S., HAMILTON, B. PARAZIN B. Earth Interactions
On the ocean-atmosphere dynamics that mediate flood hazard within the Mississippi River basin 2023

B. PARAZIN, COUGHLIN M. W., SINGER L. P., GUPTA V., ANAND S. ApJ
Foraging with MUSHROOMS: A Mixed-Integer Linear Programming Scheduler for Multimessenger Target of Opportunity Searches with the Zwicky Transient Facility 2022

SINGER L. P., PARAZIN B., COUGHLIN M. W, BLOOM J. S., CRELLIN-QUICK A., ET AL. ApJ
HEALPix Alchemy: Fast All-Sky Geometry and Image Arithmetic in a Relational Database for Multimessenger Astronomy Brokers 2022

ANDREONI I., MARGUTTI R., SALAFIA O. S., PARAZIN B., VILLAR V. A., ET AL. ApJS
Target of Opportunity Observations of Gravitational Wave Events with Vera C. Rubin Observatory 2021

Presentations

PARAZIN, B., GOMEZ, N., POLLARD, D., BRITT, C., DECONTO, R.
Pole-to-Pole Ice Sheet coupling
Poster, Polenet GIA Workshop
2025

PARAZIN, B., GOMEZ, N., HOGGARD, M. J., RICHARDS, F., COULSON, S., MITROVICA, X. J.
Ice Sheets Without Dynamic Topography
Poster, AGU 2024
2024