Austin M. Blevins, PhD

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EMPLOYMENT

Postdoctoral Research Associate, *Brown University* 2026-Present

EDUCATION

PhD **Planetary Science**, *Purdue University* Awarded December 2025

Department of Earth, Atmospheric, and Planetary Sciences
Dissertation: *The History of Lunar Impact Bombardment as Told by Apollo Samples*
Advisor: Dr. David Minton
GPA: 3.82/4.00

BS **Earth Science**, *University of Michigan-Dearborn* Awarded December 2018
Minor in **Astronomy**
Certificate in **Geographic Information Systems**
GPA: 3.76/4.00

RESEARCH EXPERIENCE

Modeling the Lunar Upper Megaregolith (2026-Present) [Postdoctoral research at Brown University]

- Using landscape evolution models (written in Python, Fortran, and Rust) to model depth of and contribution to megaregolith throughout the Moon

Constraining the composition of impact melt at the Apollo landing sites via modeling (2020-2025) [Graduate research at Purdue University]

- Advisor: Dr. David Minton
- Use a Monte Carlo impact bombardment model written in Modern Fortran along with analysis scripts written in Python to track and analyze impact melt distribution at the Apollo landing sites
- Lead author of two papers on this subject (see Manuscripts section below)

Observing the quiescent behavior of black hole V404 Cygni (2016-2019) [Undergraduate research at the University of Michigan-Dearborn]

- Advisor: Dr. Will Clarkson
- Photometrically observed black hole binary V404 Cygni with 1.3m and 2.4m telescopes in Arizona, and analyzed results using custom Python scripts
- Lead author of a successful proposal for telescope time at the MDM Observatory in Kitt Peak, AZ

Examining the correlation between rhythmic layering in Martian sedimentary deposits and orbital forcing (2016-2017) [Undergraduate research at the University of Michigan-Dearborn]

- Advisor: Dr. Mark Salvatore
- Extracted elevation data from Mars Reconnaissance Orbiter images and analyzed them in the frequency domain, comparing their Fourier transforms to those of Martian obliquity data from dynamical models

MANUSCRIPTS

Blevins, A.M, Minton, D.A., Huang, Y-H., Du, J., Tremblay, M.M., Fassett, C.I., "Apollo Impact Melts Record a Rapidly Declining Impact Rate in the Late Imbrian". *JGR:Planets* (2025). DOI: 10.1029/2024JE008722.

Blevins, A.M, Minton, D.A., Huang, Y-H., Du, J., Tremblay, M.M., Fassett, C.I., "Constraining the source basins of Apollo impact melts". JGR:Planets (2025). DOI: 10.1029/2025JE009137.

Du, J., Minton, D.A., **Blevins, A.M.**, Huang, Y-H., Fassett, C.I., "Spectral Analysis of the Morphology of Fresh Lunar Craters II: Rim Crest, Floor, and Rim Flank Outlines". *JGR:Planets* (2025). DOI: 10.1029/2024JE008890.

Du, J., Minton, D.A., **Blevins, A.M.**, Huang, Y-H., Fassett, C.I., "Spectral Analysis of the Morphology of Fresh Lunar Craters I: Rim Crest, Floor, and Rim Flank Outlines". *JGR:Planets* (2024). DOI: 10.1029/2024JE008357.

ORAL PRESENTATIONS

Blevins, A.M, Minton, D.A., Huang, Y-H., Du, J., Tremblay, M.M., "Constraining the Lunar Chronology Function using Numerical Modeling". *European Lunar Symposium,* Münster, Germany. June 25, 2025.

Blevins, A.M, Minton, D.A., Huang, Y-H., Du, J., Tremblay, M.M., "Using Numerical Modeling and Bayesian Analysis to Constrain the Source Craters of Apollo Impact Melts". *56th Lunar and Planetary Science Conference*, The Woodlands, TX. March 14, 2025.

Blevins, A.M, Minton, D.A., Huang, Y-H., Du, J., Tremblay, M.M., "Modeling the Source of Impact Melt at the Apollo 14-17 Sites". *55th Lunar and Planetary Science Conference*, The Woodlands, TX. March 13, 2024.

Blevins, A.M, Minton, D.A., Huang, Y-H., Du, J., Tremblay, M.M., "Modeling the Source of Impact Melt at the Apollo 14-17 Landing Sites". *55th Division of Planetary Science* meeting, San Antonio, TX. October 3, 2023.

Blevins, A., Clarkson, W., Fiolka, C., Aufdemberge, E., Bord, D., Vowell, N. "Charting V404 Cyg in quiescence with the MDM Observatory". *6th Annual Compact Objects in Michigan* conference, Ann Arbor, MI. April 13, 2018.

POSTER PRESENTATONS

Blevins, A.M., Minton, D.A., Rajsic, A., "Modeling the Source Craters of Material at Lunar Landing Sites". *Lunar Surface Innovation Consortium Spring Meeting*, Laurel, MD. April 30, 2026.

Blevins, A.M., Rajsic, A., Minton, D.A., "Modeling the Impact Ejecta of the Lunar Upper Megaregolith". *57th Lunar and Planetary Science Conference,* The Woodlands, TX. March 19, 2026.

Blevins, A.M., Minton, D.A., Huang, Y-H., Du, J., Tremblay, M.M., "Modeling the Effects of Post-Imbrium Craters on the Apollo Landing Site Locations". *54th Lunar and Planetary Science Conference*, The Woodlands, TX. March 14, 2023.

Blevins, A., Vowell, N., Clarkson, W., Fiolka, C., Aufdemberge, E., Bord, D. "Optical Monitoring of the Black Hole X-Ray Binary V404 Cyg". *Meeting of Minds*, May 10, 2019.

Blevins, A., Clarkson, W., Fiolka, C., Aufdemberge, E., Bord, D., Vowell, N. "Charting V404 Cyg in quiescence with the MDM Observatory". *UM-Dearborn Natural Sciences Poster Session,* April 13, 2018.

Blevins, A. and Salvatore, M. "Analysis of Rhythmic Layering in Martian Sedimentary Deposits: Implications for Climactic Variations on Mars Driven by Orbital Evolution." *UM-Dearborn Natural Sciences Poster Session,* April 21, 2017.

CONTRIBUTED ABSTRACTS

Valadez, D.D., Minton, D.A., **Blevins, A.M.,** "Modeling the Degradation of Craters on the Lunar Surface". *57th Lunar and Planetary Science Conference,* The Woodlands, TX. March 19, 2026.

Minton, D.A., **Blevins, A.M.,** Valadez, D.D., Norman, E.S., Du, J., Minton, L.A. "Cratermaker: A feature-rich and user-friendly tool for modeling cratered surfaces". *57th Lunar and Planetary Science Conference,* The Woodlands, TX. March 19, 2026.

Du, J., Minton, D.A., **Blevins, A.M.**, Fassett, C.I., Huang, Y.-H. "Topographic Spectral Analysis of Two-Dimensional Surface Elevations of the Continuous Ejecta, Wall, and Floor of Fresh Lunar Ceraters". *55th Lunar and Planetary Science Conference*, The Woodlands, TX. March 12, 2024.

Minton, D.A., **Blevins, A.M.**, Wishard, C.A. "Transient Populations of Impact Fragments as the Source of Late Imbrian Impactors". *56th Division of Planetary Science* meeting, Boise, ID. October 7, 2024.

Du, J., Minton, D.A., **Blevins, A.M.**, Fassett, C.I. "Modeling the terrace outlines of fresh lunar craters: Updates on a synthetic three-dimensional crater shape model". *55th Lunar and Planetary Science Conference*, The Woodlands, TX. March 12, 2024.

Du, J., Minton, D.A., **Blevins, A.M.**, "Power spectral densities of the floor, rim crest, and rim flank outlines of fresh lunar craters". *55th Division of Planetary Science* meeting, San Antonio, TX. October 3, 2023.

Minton, D.A., **Blevins, A.M.**, Singh, J., Wishard, C.A., "The Little Heavy Bombardment: Decoupling the time history of impact basins from smaller craters leads to alternative ways of interpreting the ancient crater records of the inner solar system". *54th Division of Planetary Science meeting*, London, ON. October 2022.

Minton, D.A., Altair, R., **Blevins, A.M.**, Fassett, C.I., Hirabayashi, M. "Modeling realistic initial morphology of complex craters with Perlin Noise." *11th Planetary Crater Consortium* meeting, Virtual. August 2020.

TEACHING AND MENTORING

Teaching Assistant for EAPS 111 Introductory Geology at Purdue Spring 2022

- Taught the laboratory section of the course

EAPS Graduate Student Mentor 2021-2022

- Peer mentoring program where I mentored a first-year graduate student for their first semester at Purdue

GIS Laboratory Student Assistant at UM-Dearborn Winter and Fall 2018

- Assisted a diverse set of students with problem-solving in introductory and advanced GIS and remote sensing courses
- Supported GIS faculty with data management
- Wrote instructions for students in introductory GIS and Remote Sensing classes to follow
- Communicated with ITS regarding technical problems

COMMUNITY OUTREACH

Volunteer for Purdue Homecoming Outreach Tent, 2024

- Explained concepts of geology and planetary science to members of the general public

Volunteer for K-12 Outreach event, 2022

- Assisted students in second grade with activities designed to help them learn about science

Volunteer for Earth Day event, 2022

- Ran a station for elementary school students to learn about Earth Day and environmental science through hands-on activities at a local science museum

Contributor to Purdue EAPS Passport Week 2022

- Made a video demonstrating a topic in astronomy and planetary science, aimed towards students in grades 4-6

Volunteer for Purdue EAPS Passport Day 2019

- Ran a station for elementary school students to learn about planetary science through hands-on activities at a local science museum

HONORS AND AWARDS

Purdue College of Science Bilsland Dissertation Fellowship 2024-2025
Purdue EAPS Teaching Honor Roll Spring 2022
Graduated from UM-Dearborn With High Distinction December 2018
UM-Dearborn Honors Scholar for Geological Sciences 2018
UM-Dearborn CASL Dean's List Fall 2015-Fall 2017
UM-Dearborn Dean's Scholarship Fall 2014-Winter 2018

EXTRACURRICULAR

Lunar and Planetary Institute EVA Exercise at Meteor Crater 2023

- Served in a virtual Science Operations Center acting as part of a science team advising an "astronaut" simulating an extra-vehicular activity (EVA) at a lunar analog site

Purdue EAPS Adopt-A-Highway Highway Cleanup Community Service 2025

- Cleaned up trash along a highway along with other members of Purdue EAPS
- "Purdue EAPS" was added to an "Adopt-A-Highway" sign on this particular highway

Purdue EAPS Undergraduate Mentoring Committee 2023-2024

- Organized events led by Purdue EAPS graduate students with the goal of assisting EAPS undergraduate students with the graduate school application process

Purdue Graduate Student Senate EAPS Representative 2022-2023

- Represented the EAPS department in the graduate student government
- Voted on and drafted legislation aimed at improving life for Purdue graduate students
- Member of Life Team: Organized social events for Purdue graduate students

Science Lead of UM-Dearborn Intelligent Systems Club Argon Team 2016-2018

- Provided guidance regarding scientific instrument selection to engineers designing and building a rover to compete in the Mars Society's University Rover Challenge
- Made GIS maps of the competition site using geologic properties such as soil

Volunteer for UM-Dearborn GIS Day 2017 and 2018

SKILLS

- Microsoft Office, including Word Excel, and PowerPoint
- Python for data analysis, including implementing custom routines
- Modern Fortran, including Object-Oriented Fortran

- UNIX shell commands
- ArcGIS (including ArcMap and ArcGIS Pro) and QGIS
- Ground-based astronomical observation (on-site and remote)

RESEARCH INTERESTS

- Impact cratering
- Radiogenic isotope loss via thermal diffusion, especially when caused by impact heating
- Origin and evolution of the early Solar System, especially impact bombardment rates and chronology
- Numerical modeling of planetary systems and surfaces, especially using Monte Carlo methods
- Planetary remote sensing