

CURRICULUM VITAE OF RICHARD WILLIAMS

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/github.com/rkwilli2

EDUCATION

Marshall University

M.A Mathematics (2027 Spring)

- In Progress: Real Variables, Modern Geometries, Stochastic Processes
- Thesis: The Polynomial Shift Operator on Time Scales

Huntington, WV

Marshall University

B.S. Mathematics (2025 Spring) GPA: 3.50

Computer Science GPA: 3.81

Huntington, WV

(2024 Fall–2025 Spring)

(2024 Fall–2024 Spring)

Fairmont, WV

Fairmont State University

Mathematics. GPA: 3.73

Computer Science. GPA: 3.80

(2021 Fall–2023 Spring)

(2021 Fall–2023 Spring)

WORK EXPERIENCE

Marshall University MU HELP Program

(2025 Fall –Present) Graduate Assistant Tutor

Huntington, WV

Marshall University Department of Mechanical and Industrial Engineering

(2023 Spring–2025 Fall) Research Assistant - Linear Programming, Seismic Modeling

Huntington, WV

Marshall University Department of Mathematics and Physics

(2023 Fall) Math & Stats Tutoring Lab Tutor

Huntington, WV

Fairmont State University LEAD Center

(2022 Fall–2023 Spring) Mathematics Tutor

Fairmont, WV

GRANTS

- (2024 Fall–2025 Spring) **WV NASA Space Grant Consortium**
“Numerical Solutions to the Heat Equations on Time Scales”
- (2023 Fall–2024 Spring) **WV NASA Space Grant Consortium**
“A Contour Integral Approach to Solving Generalized Heat Equations on Time Scales”
- (2022 Fall–2023 Spring) **WV NASA Space Grant Consortium**
“Linear-Quadratic Pursuit-Evasion Games on Time Scales”

PUBLICATIONS

- Sudipta Chowdhury, Richard Williams. Generating synthetic seismograms using wave equations on time scales. In progress.
- Sudipta Chowdhury, Richard Williams. Optimizing restoration time of hospitals by modeling seismic resilience of an electrical grid. Under review.
- Davis Funk, Richard Williams, Nick Wintz. Linear-quadratic pursuit-evasion games on time scales. Recent Advanced in Dynamic Equations on Time Scales (2025).
- Robert Niichel, Elizabeth Harvey, Richard Williams, Ricard Marsal-Castan, Victor Norton, Abbey Summers. A Triangle Problem on Finite Lattices. Accepted.

RESEARCH EXPERIENCE

Advised by Dr. Sudipta Chowdhury (2024-present)

- Modeling Seismic Resilience with Mixed-Integer Linear Programming
- Generating Synthetic Seismogram using Time Scales

Advised by Dr. Tom Cuchta (2022-present)

- Transversality Conditions for Generalized Fractional Variational Problems
- Euler-Lagrange Equations for Hadamard Differences
- Heat Equation on Time Scales
- Ergodic Plane & Frequency on Time Scales

REU: Discrete and Continuous Analysis in Appalachia (2022)

- Linear-Quadratic Pursuit-Evasion Games on Time Scales
- The Lewis Carroll Triangle Problem on Lattices

CONFERENCES

— (2025 Oct) AMS Fall Central Section Meeting	St. Louis, MO
— (2024 Nov) Southeastern-Atlantic Regional Conference on Differential Equations	Morgantown, WV
— (2024 Apr) Marshall University College of Science Research Expo	Huntington, WV
— (2024 Apr) MAA Allegheny Mountain Section Spring 2024 Conference	Fairmont, WV
— (2023 Nov) Undergraduate Mathematics Days	Dayton, OH
— (2023 Apr) Fairmont State University Celebration of Student Scholarship	Fairmont, WV
— (2023 Mar) MAA Allegheny Mountain Section Spring 2023 Conference	Edinboro, PA
— (2023 Feb) Pi Mu Epsilon Student Paper Meeting	Youngstown, OH
— (2023 Jan) Joint Math Meetings, AMS-PME Poster Session	Boston, MA
— (2022 Jul) WVU Summer Undergraduate Research Symposium	Morgantown, WV

EXTRACURRICULAR ACTIVITIES

Fairmont State Masquers (2021 Fall–2023 Spring)

- *All in the Timing* actor (2023 Fall)
- *Us and Them* actor (2022 Spring)

REFERENCES

Dr. Tom Cuchta

- Assistant Professor of Mathematics
- Marshall University
- cuchta@marshall.edu

Dr. Sudipta Chowdhury

- Assistant Professor of Industrial Engineering
- Marshall University
- chowdhurys@marshall.edu

Dr. Nick Wintz

- Assistant Professor of Mathematics
- Radford University
- nwintz@radford.edu

Dr. Robert Niichel

- Associate Professor of Mathematics
- Fairmont State University
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