



BARNABÁS VALKÓ

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EDUCATION

University of Wisconsin–Madison

Madison, WI

Bachelors of Science in Mathematics & Statistics — GPA: 3.911 / 4.000

Sep 2023 – May 2027 (expected)

- Additional Certificates in Physics and Educational Policy Studies
- Relevant Coursework: Sports Analytics, Financial Statistics, Stochastic Processes, Regression Analysis, Experimental Design, Machine Learning, Probability Theory, Combinatorics, Brownian Motion

RESEARCH & PROJECTS

NFL Big Data Bowl 2026 — *Honorable Mention (Top 5 / ~300 Submissions)*

Oct 2025 – Dec 2025

- Developed *Primary Defender Break Score* (PDBS), leveraging a GAM-based predictive EPA model to quantify how many points a primary pass defender saves whilst a pass is in the air using NFL Next Gen Stats tracking data.
- Achieved honorable mention in the University track, placing in the top 5 of approximately 300 submissions.
- **Skills:** R, Quarto, Sports Analytics, Statistical Modeling, Player Tracking Data

ASA Virtual Sports Analytics Conference 2026 — *Invited Speaker*

April 24, 2026

- Delivered a 20-minute invited talk, “*Primary Defender Break Score: Quantifying Post-Throw Defensive Reaction in the NFL*,” at the American Statistical Association Virtual Sports Analytics Conference following a successful abstract submission.

Big Ten Academic Alliance Data Visualization Competition

Jan 2026 – Feb 2026

- Won *Bucky’s Data Viz Challenge*, a campus-wide competition, with an interactive D3.js dashboard visualizing the geometry and structure of college fight songs.
- Selected to represent UW–Madison at the 2026 BTAA Data Visualization Competition.
- **Skills:** D3.js, Data Visualization, JavaScript, HTML

Madison Experimental Mathematics (MXM) Lab

Sep 2025 – Present

- Collaborating with three undergraduates, a graduate mentor, and Prof. Paul Terwilliger on a research project titled “*Irreducible T -modules of Distance-Regular Graphs with Valency Three*,” targeting journal publication in Summer 2026.
- **Skills:** Algebraic Combinatorics, Graph Theory, Mathematical Writing, LaTeX

EXPERIENCE

Grader & Undergraduate Assistant

Sep 2025 – Present

University of Wisconsin–Madison, Department of Mathematics

Madison, WI

- Lead grader for *Math 475: Introduction to Combinatorics* (Fall 2025, Spring 2026), grading weekly homework for 50+ students and providing detailed written feedback with expertise in the subject, in a timely manner.
- Assistant grader for *Math 222: Calculus II* midterms (Fall 2025).
- Proctored exams for eight other courses including *Math 535: Mathematical Methods in Data Science*, *Math 444: Graphs and Networks in Data Science*, as well as Linear Algebra, Differential Equations, and Calculus.

Summer Camp Site Director

May 2019 – Aug 2025

Madison Metropolitan School District

Madison, WI

- Directed and managed 10+ staff members at sports camps serving 40+ youth participants per week across six summers.
- **Roles:** Mad City Sports Camp Assistant Site Director (2025), Soccer Camp Site Director (2024), Sports Camp Program Leader (2019–2023).

HONORS & AWARDS

National Merit University of Wisconsin–Madison Scholarship

May 2023

Wisconsin Merit Scholarship

Sep 2023

Kemper K. Knapp Merit Scholarship

Sep 2023

TECHNICAL SKILLS

Languages & Tools: R, Python, D3.js, JavaScript, HTML, LaTeX, SQL

Analytics: Player Tracking Data, Statistical Modeling, Data Visualization, Sports Metrics Design

Mathematics: Probability & Statistical Inference, Linear Algebra, Stochastic Processes, Algebraic Combinatorics, Graph Theory

Languages: English (Native), Hungarian (Native)