

# Ngoc Minh Quang Nguyen

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## EDUCATION

<b>Carnegie Mellon University</b> PhD, Statistics & Data Science	2022 – present
<b>Loyola University Chicago</b> MS, Applied Statistics	2020 – 2021
<b>Wittenberg University</b> BS, Mathematics & Data Science	2017 – 2020

## RESEARCH EXPERIENCE

<b>Carnegie Mellon University</b> Graduate Researcher (Advisor: Ron Yurko)	2023 – present
<b>Carnegie Mellon University</b> Advanced Data Analysis Project (Advisor: Nynke Niezink)	2022 – 2023
<b>Loyola University Chicago</b> Graduate Research Assistant (Advisor: Gregory J. Matthews)	2020 – 2021
<b>Wittenberg University</b> Senior Honors Thesis Research (Advisor: Douglas M. Andrews)	2019 – 2020

## ACADEMIC EXPERIENCE

<b>Carnegie Mellon University</b> Instructor Summer Undergraduate Research Experience (SURE) in Statistics	Summer 2024, Summer 2025
Teaching Assistant 36-460/660: Sports Analytics 36-468/668: Text Analysis Carnegie Mellon Sports Analytics Camp (CMSACamp)/ Summer Undergraduate Research Experience (SURE) in Statistics	Spring 2024, Spring 2025 Fall 2023, Fall 2024 Summer 2023
36-402/608: Advanced Methods for Data Analysis 36-401/607: Modern Regression	Spring 2023 Fall 2022
<b>Loyola University Chicago</b> Instructor STAT 103: Fundamentals of Statistics (3 sections)	Spring 2022
<b>Wittenberg University</b> Math Workshop Head Tutor Faculty Aide	2018 – 2020 2018 – 2020
<b>Clarkston Senior High School</b> S.U.M. (Student Understanding Math) Assistant	2017

## PUBLICATIONS

### Journal Articles

**Q. Nguyen**, R. Jiang, M. Ellingwood, R. Yurko. Fractional Tackles: Leveraging Player Tracking Data for Within-Play Tackling Evaluation in American Football. *Scientific Reports (Nature Portfolio)* **15**, 2148. 2025.

[doi.org/10.1038/s41598-025-85993-1](https://doi.org/10.1038/s41598-025-85993-1); [arXiv: 2403.14769](#).

**Q. Nguyen**, R. Yurko, G. J. Matthews. Here Comes the STRAIN: Analyzing Defensive Pass Rush in American Football with Player Tracking Data. *The American Statistician* **78**(2), 199–208. 2024. [doi: 10.1080/00031305.2023.2242442](https://doi.org/10.1080/00031305.2023.2242442); [arXiv: 2305.10262](#).

**Editors' Choice Collection.**

**Q. Nguyen**, G. J. Matthews. Filling the Gaps: A Multiple Imputation Approach to Estimating Aging Curves in Baseball. *Journal of Sports Analytics* **10**(1), 77–85. 2024. [doi: 10.3233/JSA-240744](https://doi.org/10.3233/JSA-240744); [arXiv: 2210.02383](#).

N. M. Lemon, L. K. Taylor, M. A. Rech, **Q. Nguyen**, G. J. Matthews, G. Lew, S. Lovett. Utility of D-dimer in predicting pulmonary embolism in patients with COVID-19 presenting to the emergency department. *Journal of the American College of Emergency Physicians Open* **5**(4), e13237. 2024. [doi:10.1002/emp2.13237](https://doi.org/10.1002/emp2.13237).

B. S. Baumer, G. J. Matthews, **Q. Nguyen**. Big Ideas in Sports Analytics and Statistical Tools for their Investigation. *Wiley Interdisciplinary Reviews: Computational Statistics* **15**(6), e1612. 2023. [doi: 10.1002/wics.1612](https://doi.org/10.1002/wics.1612); [arXiv: 2301.04001](#).

**Q. Nguyen**. Poisson Modeling and Predicting English Premier League Goal Scoring. *New England Journal of Statistics in Data Science* **1**(1), 95–101. 2023. [doi: 10.51387/21-NEJSDS1](https://doi.org/10.51387/21-NEJSDS1); [arXiv: 2105.09881](#).

**Q. Nguyen**, H. Butler, G. J. Matthews. An Examination of Olympic Sport Climbing Competition Format and Scoring System. *Journal of Data Science* **20**(2), 156–167. 2022. [doi: 10.6339/22-JDS1042](https://doi.org/10.6339/22-JDS1042); [arXiv: 2111.05310](#).

## Under Review

**Q. Nguyen**, R. Yurko. A Bayesian circular mixed-effects model for explaining variability in directional movement in American football. 2025+. [arXiv: 2507.06122](#).

**Q. Nguyen**, P. Campana, N. M. D. Niezink. Co-evolution of cooperation and conflict among organized crime groups: Evidence from the United Kingdom. 2025+.

**Q. Nguyen**, R. Yurko. A multilevel model with heterogeneous variances for snap timing in the National Football League. 2025+. [arXiv: 2502.16313](#).

R. Yurko, **Q. Nguyen**, K. Pelechris. NFL Ghosts: A framework for evaluating defender positioning with conditional density estimation. 2024+. [arXiv: 2406.17220](#).

## Other

**Q. Nguyen**, R. Yurko. Down, set, hut! Explaining variability in snap timing on plays with motion. NFL Big Data Bowl 2025. <https://www.kaggle.com/code/tindata/down-set-hut>

**Q. Nguyen**, L. Jiang, M. Ellingwood, R. Yurko. Momentum-based fractional tackles. NFL Big Data Bowl 2024. <https://www.kaggle.com/code/tindata/momentum-based-fractional-tackles>

G. J. Matthews, **Q. Nguyen**. STRAIN: Sacks, Tackles, Rushing, Aggression INdex. NFL Big Data Bowl 2023. <https://www.kaggle.com/code/statsinthewild/strain-sacks-tackles-rushing-aggression-index>

B. S. Baumer, **Q. Nguyen**, G. J. Matthews. CRAN Task View: Sports Analytics. The Comprehensive R Archive Network. 2022. <https://cran.r-project.org/web/views/SportsAnalytics.html>

## SELECTED PRESENTATIONS

### Talks

**Q. Nguyen**, R. Yurko. A Bayesian circular mixed-effects model for explaining variability in directional movement in American football. *New England Symposium on Statistics in Sports*. September 2025.

**Q. Nguyen**. Advances in pass rush and change of direction evaluation in American football with player tracking data. *U.S. Olympic and Paralympic Performance Innovation Summit*. August 2025.

**Q. Nguyen, R. Yurko.** Down, set, hut! Explaining variability in snap timing on plays with motion. *2025 Joint Statistical Meetings*. August 2025.

**Q. Nguyen, R. Yurko.** Step-and-turn modeling of individual player movement in American football. *Conference on Predictive Inference in Sports*. June 2025.

**Q. Nguyen, R. Yurko.** Explaining variability in player turning behavior in the National Football League. *CMSAC Football Analytics Workshop 2025*. May 2025.

**Q. Nguyen.** Advances in pass rush and tackling evaluation in American football with player tracking data. *2024 Joint Statistical Meetings*. August 2024.

**Invited Paper Session: Leveraging Player Tracking Data in Sports: Challenges and Opportunities**

**Q. Nguyen, L. Jiang, M. Ellingwood, R. Yurko.** Fractional tackles. *UConn Sports Analytics Symposium*. April 2024.

**Big Data Bowl Finalists Session**

**Q. Nguyen, L. Jiang, M. Ellingwood, R. Yurko.** Momentum-based fractional tackles. *NFL Big Data Bowl 2024 Final*. February 2024.

**Finalist (Top 5 + \$12,500 prize + Presented at 2024 NFL Scouting Combine)**

**Q. Nguyen.** Opportunities in sports analytics with player tracking data: A case study of NFL pass rush evaluation. *Data Science Seminar, Loyola University Chicago*. November 2023.

**Q. Nguyen, R. Yurko, G. J. Matthews.** Here Comes the STRAIN: Analyzing Defensive Pass Rush in American Football with Player Tracking Data. *New England Symposium on Statistics in Sports*. September 2023.

**Featured talk**

**G. J. Matthews, Q. Nguyen.** STRAIN: Sacks, Tackles, Rushing, Aggression INDEX. *NFL Big Data Bowl 2023 Final*. March 2023.

**Finalist (Top 8 + \$10,000 prize + Presented at 2023 NFL Scouting Combine)**

**Q. Nguyen, G. J. Matthews.** Estimating Aging Curves: Using Multiple Imputation to Examine Career Trajectories of MLB Offensive Players. *Carnegie Mellon Sports Analytics Conference*. October 2022.

**Finalist, Open Methodology Track, Reproducible Research Competition**

**Q. Nguyen, H. Butler, G. J. Matthews.** An Examination of Olympic Sport Climbing Competition Format and Scoring System. *Cascadia Symposium on Statistics in Sports*. September 2022.

**Q. Nguyen, H. Butler, G. J. Matthews.** An Examination of Sport Climbing's Competition Format and Scoring System. *Carnegie Mellon Sports Analytics Conference*. November 2021.

**Winner, Open Methodology Track, Reproducible Research Competition**

**Posters**

**Q. Nguyen, H. Butler, G. J. Matthews.** Concerns Regarding Sport Climbing Competition Format and Scoring System: Who's Suffering? *UConn Sports Analytics Symposium*. October 2021.

**Winner, Student Poster Award**

**Q. Nguyen.** Poisson Modeling and Predicting English Premier League Goal Scoring. *NextGen: Data Science Day - New England Statistical Society*. November 2020.

**Co-Winner, Poster Competition, Undergrad/MS Group**

**Q. Nguyen.** Poisson Modeling and Predicting English Premier League Goal Scoring. *Carnegie Mellon Sports Analytics Conference*. October 2020.

**Q. Nguyen.** Poisson Modeling and Predicting English Premier League Goal Scoring. *UConn Sports Analytics Symposium*. October 2020.

## Workshops

**Q. Nguyen.** Building a performance metric with player tracking data. *Connecticut Sports Analytics Symposium*. April 2025.

### **Player Tracking Data in Sports Analytics Workshop (Advanced Level)**

**Q. Nguyen.** Get Trained & Get Strained: The Ingredients of a Big Data Bowl Metric. *Carnegie Mellon Sports Analytics Conference*. November 2023.

### **Big Data Bowl Workshop Sponsored by SumerSports**

## Guest Lectures

**Q. Nguyen.** Bayesian multilevel modeling in the wild: Beyond homogeneity. *Special Topics: Sports Analytics*. March 2025.

**Q. Nguyen.** Big Data Bowl: Overview, Getting Started, My Experience, and more. *Summer Undergraduate Research Experience in Statistics (Carnegie Mellon Sports Analytics Camp)*. July 2023.

**Q. Nguyen.** Web Scraping: A Primer. *Summer Undergraduate Research Experience in Statistics (Carnegie Mellon Sports Analytics Camp)*. July 2023.

## HONORS & AWARDS

**NFL Big Data Bowl Semifinalist** 2025

**NFL Big Data Bowl Finalist** 2023, 2024

Invited to present at NFL Scouting Combine

**ASA Section on Statistics in Sports Student Funding** 2024

ASA Section on Statistics in Sports

**Graduate Student Assembly/Provost Conference Funds** 2024

Carnegie Mellon University

**Student Travel Support** 2024

UConn Sports Analytics Symposium 2024

**Reproducible Research Competition Finalist (Open Methodology Track)** 2022

Carnegie Mellon Sports Analytics Conference 2022

**University of Toronto Sports Analytics Group (UTSPAN) Scholarship** 2022

Cascadia Symposium on Statistics in Sports 2022

**Reproducible Research Competition Winner (Open Methodology Track)** 2021

Carnegie Mellon Sports Analytics Conference 2021

**Student Poster Award Winner** 2021

UConn Sports Analytics Symposium 2021

**Merit Award** 2020 – 2021

MS in Applied Statistics Program, Loyola University Chicago

**Poster Competition Co-Winner (Undergrad/MS Group)** 2020

NextGen: Data Science Day 2020 (New England Statistical Society)

**Summa Cum Laude** 2020

Graduated with the highest distinction, Wittenberg University

**Departmental Honors** 2020

Department of Mathematics and Computer Science, Wittenberg University

**Phi Beta Kappa** 2020

Omicron of Ohio Chapter, Wittenberg University

<b>Pi Mu Epsilon</b> Ohio Upsilon Chapter, Wittenberg University	2020
<b>The Charles and Elsie Little Mathematics Award</b> Department of Mathematics and Computer Science, Wittenberg University Awarded to the most outstanding senior majoring in mathematics and data science	2020
<b>Mortar Board</b> Wittenberg University	2020
<b>Pick and Pen</b> Wittenberg University	2019
<b>Mathematics 202 Award</b> Department of Mathematics and Computer Science, Wittenberg University Awarded to an outstanding first-year student in the introductory calculus sequence	2018
<b>Textbook Award</b> Department of Mathematics and Computer Science, Wittenberg University	2018
<b>Phi Eta Sigma</b> Wittenberg University	2018
<b>Dean's List</b> Wittenberg University	All semesters; 2017 – 2020

## SKILLS

Computing: R/RStudio (expert); Python, SQL, SAS, Git/GitHub (intermediate)

Typesetting: markdown,  $\LaTeX$  (proficient)

Bilingual: Vietnamese (native language) and English (proficient)

## SERVICES

### Organizer

Carnegie Mellon Sports Analytics Center (CMSAC) Research Lab  
(formerly Statistics in sports reading/research group) 2023 – present

### Program Committee

Connecticut Sports Analytics Symposium 2025  
UConn Sports Analytics Symposium 2024

### Reviewer

Journal of Quantitative Analysis in Sports  
Machine Learning  
The American Statistician  
WIREs Computational Statistics

### Judge

CSAS 2025 Student Poster Award 2025  
CSAS 2025 Data Challenge 2025  
CMSAC 2024 Reproducible Research Competition 2024  
UCSAS 2024 Student Poster Award 2024  
UCSAS 2024 USOPC Data Challenge 2024

### Mentoring

Women in Data Science (WiDS) Chicago Datathon 2022

### Statistical Consulting

Carnegie Mellon University Athletics 2024

## MEDIA

Committee Collaboration Yields Editors' Choice Collection 2024

Amstat News (American Statistical Association)

<https://magazine.amstat.org/blog/2024/01/02/editors-choice-collection>

An Examination of Sport Climbing with Quang Nguyen 2022

Open Source Sports Podcast, Episode IX Guest

<https://opensourcesports.substack.com/p/an-examination-of-sport-climbing-a1e>

Viz Buzz 2022

Episodes 2, 3, 4, 5 Contestant (Episodes 3 & 4 Lap Winner)

[https://youtube.com/playlist?list=PL2rVQ3cmgOyx\\_CdtKOA0oX2pikOcc\\_xu-](https://youtube.com/playlist?list=PL2rVQ3cmgOyx_CdtKOA0oX2pikOcc_xu-)

Can you pick the AFL's Brownlow Medal winner without knowing the first thing about Australian rules? 2021

ABC News (Australia)

<https://www.abc.net.au/news/2021-09-19/afl-trying-to-predict-the-2021-brownlow-medal-winner/100472246>

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