Ngoc Minh Quang Nguyen

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EDUCATION

Carnegie Mellon University — 2022 – present
PhD, Statistics & Data Science

Loyola University Chicago — 2020 – 2021
MS, Applied Statistics

Wittenberg University — 2017 – 2020
BS, Mathematics & Data Science

RESEARCH EXPERIENCE

Carnegie Mellon University — 2023 – present
Graduate Researcher (Advisor: Ron Yurko)

Carnegie Mellon University — 2022 – 2023
Advanced Data Analysis Project (Advisor: Nynke Niezink)

Loyola University Chicago — 2020 – 2021
Graduate Research Assistant (Advisor: Gregory J. Matthews)

Wittenberg University — 2019 – 2020
Senior Honors Thesis Research (Advisor: Douglas M. Andrews)

ACADEMIC EXPERIENCE

Carnegie Mellon University
Instructor
Summer Undergraduate Research Experience (SURE) in Statistics — Summer 2024, Summer 2025

Teaching Assistant
36-460/660: Sports Analysis — Spring 2024, Spring 2025
36-468/668: Text Analysis — Fall 2023, Fall 2024, Fall 2025
Carnegie Mellon Sports Analytics Camp (CMSACamp)/ — Summer 2023
Summer Undergraduate Research Experience (SURE) in Statistics
36-402/608: Advanced Methods for Data Analysis — Spring 2023
36-401/607: Modern Regression — Fall 2022

Loyola University Chicago
Instructor
STAT 103: Fundamentals of Statistics (3 sections) — Spring 2022

Wittenberg University
Math Workshop Head Tutor — 2018 – 2020
Faculty Aide — 2018 – 2020

Clarkston Senior High School
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; 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; 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; 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.

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; 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; 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; 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. Pelechrinis. 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. NFL CoD: 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. NFL CoD. *Uncontrolled Variables.* 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

Sports Analytics Student Award — 2025
Carnegie Mellon Statistics & Data Science (Funded by the Richardson Matano Family)

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

Pi Mu Epsilon 2020
Ohio Upsilon Chapter, Wittenberg University

The Charles and Elsie Little Mathematics Award 2020
Department of Mathematics and Computer Science, Wittenberg University
Awarded to the most outstanding senior majoring in mathematics and data science

Mortar Board 2020
Wittenberg University

Pick and Pen 2019
Wittenberg University

Mathematics 202 Award 2018
Department of Mathematics and Computer Science, Wittenberg University
Awarded to an outstanding first-year student in the introductory calculus sequence

Textbook Award 2018
Department of Mathematics and Computer Science, Wittenberg University

Phi Eta Sigma 2018
Wittenberg University

Dean's List All semesters; 2017 – 2020
Wittenberg University

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 2023 – present
(formerly Statistics in sports reading/research group)

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
CMSAC 2025 Reproducible Research Competition 2025
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
Loyola University Chicago   2021 – 2022
(Clients: Stritch School of Medicine; Department of Biology; City of Milwaukee Assessor's Office)

MEDIA

Watt vs. Garrett? Metcalf vs. Pickens? Quang Nguyen Uses Next Gen Stats   2025
To Evaluate Player Performance
Dietrich College of Humanities and Social Sciences, Carnegie Mellon University
https://www.cmu.edu/dietrich/statistics-datascience/news/2025/sports-analytics-quang-nguyen.html

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_CdtKOAOoX2pikOcc_xu-

Can you pick the AFL's Brownlow Medal winner without knowing the first thing about   2021
Australian rules?
ABC News (Australia)
https://www.abc.net.au/news/2021-09-19/afl-trying-to-predict-the-2021-brownlow-medal-winner/
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