

# Ngoc Minh Quang Nguyen

✉ [quang@stat.cmu.edu](mailto:quang@stat.cmu.edu) 🌐 [qntkhvn](https://qntkhvn.github.io) 📱 [qntkhvn.netlify.app](https://qntkhvn.netlify.app)

## 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, Fall 2025 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. Yurko. A multilevel model with heterogeneous variances for snap timing in the National Football League. 2025+. *Journal of the Royal Statistical Society Series A*. doi: [10.1093/jrsssa/qnaf185](https://doi.org/10.1093/jrsssa/qnaf185); arXiv: [2501.10000](https://arxiv.org/abs/2501.10000)

2502.16313.

**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: [10.1038/s41598-025-85993-1](https://doi.org/10.1038/s41598-025-85993-1); arXiv: [2403.14769](https://arxiv.org/abs/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](https://arxiv.org/abs/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](https://arxiv.org/abs/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](https://arxiv.org/abs/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](https://arxiv.org/abs/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](https://arxiv.org/abs/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](https://arxiv.org/abs/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+.

R. Yurko, **Q. Nguyen**, K. Pelechrinis. NFL Ghosts: A framework for evaluating defender positioning with conditional density estimation. 2024+. arXiv: [2406.17220](https://arxiv.org/abs/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: A Science & Comedy Show*. 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.

## Tutorials and Workshops

**Q. Nguyen.** Rcpp: A primer. *StatBytes Statistical Computing Seminars (Department of Statistics & Data Science, Carnegie Mellon University)*. November 2025.

**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

<b>Sports Analytics Student Award</b>	2025
Carnegie Mellon Statistics & Data Science (Funded by the Richardson Matano Family)	

<b>NFL Big Data Bowl Semifinalist</b>	2025
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<b>NFL Big Data Bowl Finalist</b>	2023, 2024
Invited to present at NFL Scouting Combine	

<b>ASA Section on Statistics in Sports Student Funding</b>	2024
ASA Section on Statistics in Sports	

<b>Graduate Student Assembly/Provost Conference Funds</b>	2024
Carnegie Mellon University	

<b>Student Travel Support</b>	2024
UConn Sports Analytics Symposium 2024	

<b>Reproducible Research Competition Finalist (Open Methodology Track)</b>	2022
Carnegie Mellon Sports Analytics Conference 2022	

<b>University of Toronto Sports Analytics Group (UTSPAN) Scholarship</b>	2022
Cascadia Symposium on Statistics in Sports 2022	

<b>Reproducible Research Competition Winner (Open Methodology Track)</b>	2021
Carnegie Mellon Sports Analytics Conference 2021	

<b>Student Poster Award Winner</b>	2021
UConn Sports Analytics Symposium 2021	

<b>Merit Award</b>	2020 – 2021
MS in Applied Statistics Program, Loyola University Chicago	

<b>Poster Competition Co-Winner (Undergrad/MS Group)</b>	2020
NextGen: Data Science Day 2020 (New England Statistical Society)	

<b>Summa Cum Laude</b>	2020
Graduated with the highest distinction, Wittenberg University	

<b>Departmental Honors</b> Department of Mathematics and Computer Science, Wittenberg University	2020
<b>Phi Beta Kappa</b> Omicron of Ohio Chapter, Wittenberg University	2020
<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

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
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### **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 To Evaluate Player Performance	2025
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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 Amstat News (American Statistical Association)	2024
<a href="https://magazine.amstat.org/blog/2024/01/02/editors-choice-collection">https://magazine.amstat.org/blog/2024/01/02/editors-choice-collection</a>	

An Examination of Sport Climbing with Quang Nguyen Open Source Sports Podcast, Episode IX Guest	2022
<a href="https://opensourcesports.substack.com/p/an-examination-of-sport-climbing-a1e">https://opensourcesports.substack.com/p/an-examination-of-sport-climbing-a1e</a>	

Viz Buzz Episodes 2, 3, 4, 5 Contestant (Episodes 3 & 4 Lap Winner)	2022
<a href="https://youtube.com/playlist?list=PL2rVQ3cmgOyx_CdtKOA0oX2pikOcc_xu-">https://youtube.com/playlist?list=PL2rVQ3cmgOyx_CdtKOA0oX2pikOcc_xu-</a>	

Can you pick the AFL’s Brownlow Medal winner without knowing the first thing about Australian rules? ABC News (Australia)	2021
<a href="https://www.abc.net.au/news/2021-09-19/afl-trying-to-predict-the-2021-brownlow-medal-winner/100472246">https://www.abc.net.au/news/2021-09-19/afl-trying-to-predict-the-2021-brownlow-medal-winner/100472246</a>	

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