

# Ronald J. Yurko, Jr.

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## Curriculum Vitae

### Education

- 2017-Present **PhD in Statistics & Data Science**, *Carnegie Mellon University*.  
○ Advisors: Kathryn Roeder and Max G'Sell
- 2017-2018 **MS in Statistics**, *Carnegie Mellon University*.
- 2012-2015 **BS in Statistics**, *Carnegie Mellon University*.  
○ University Honors, GPA: 3.97/4.00

### Publications and Preprints

- Under review **Going Deep: models for continuous-time within-play valuation of game outcomes in american football with tracking data**, *R. Yurko, F. Matano, L. Richardson, N. Granered, T. Pospisil, K. Pelechrinis, S. Ventura*, *Journal of Quantitative Analysis in Sports*.  
○ ArXiv: <https://arxiv.org/abs/1906.01760>
- A naive bayes approach for NFL passing evaluation using tracking data extracted from images**, *S. Mallepalle, R. Yurko, K. Pelechrinis, S. Ventura*, *Journal of Quantitative Analysis in Sports*.  
○ ArXiv: <https://arxiv.org/abs/1906.03339>
- Unsupervised methods for identifying pass coverage among defensive backs with NFL player tracking data**, *R. Dutta, R. Yurko, S. Ventura*, *Journal of Quantitative Analysis in Sports*.  
○ ArXiv: <https://arxiv.org/abs/1906.11373>
- Application of selective inference to multi-omics data yields insights into the etiologies of human diseases**, *R. Yurko, M. G'Sell, K. Roeder, B. Devlin*.  
○ bioRxiv: <https://www.biorxiv.org/content/10.1101/806471v1>
- 2019 **nflWAR: a reproducible method for offensive player evaluation in football**, *R. Yurko, S. Ventura, M. Horowitz*, *Journal of Quantitative Analysis in Sports*.  
○ De Gruyter: <https://doi.org/10.1515/jqas-2018-0010>

### Presentations

#### Invited Seminar Presentations

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2019 **Going Deep: models for continuous-time within-play valuation of game outcomes in american football with tracking data**, New England Symposium on Statistics in Sports.

**'Many Students, One Dataset': Using ISLE to Teach Reproducibility and the Impact of Data Analysis Decisions on Conclusions**, *Joint work with R. Nugent, P. Burckhardt, F. Kovacs*, USCOTS.

2017 **nflWAR: a reproducible method for offensive player evaluation in football**, New England Symposium on Statistics in Sports.

**nflWAR: a reproducible method for offensive player evaluation in football**, Computational Sports Informatics Colloquium.

#### Contributed Conference Oral Presentations

2018 **Variable selection for consistent clustering**, Symposium on Data Science & Statistics.

**A case study in reproducibility: detecting data analysis patterns in text and graphs to characterize student workflows**, Classification Society Annual Meeting.

**Multilevel models to measure player, team, and stadium effects on NFL injury risk**, *Joint work with Zachary Binney*, Cascadia Symposium on Statistics in Sports.

2017 **nflscrapR: an R package for easy access to NFL data and a new model for expected points and win probability**, UP-STAT.

o Second Place, Best Young Researchers' Award in Category C: Application

**NFL player evaluation using expected points added with nflscrapR**, Great Lakes Analytics in Sports Conference.

**Variable selection for consistent clustering**, Classification Society Annual Meeting.

#### Conference Poster Presentations

2019 **Application of post-selection inference to multi-omics data yields insights into the etiologies of human diseases**, 2019 Annual Meeting of the American Society of Human Genetics.

2018 **Variable selection for consistent clustering**, Pittsburgh ASA Chapter Spring Banquet.

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2015 **Classifying Kepler objects of interest**, *Joint work with Eric Alpert*, Meeting of the Minds.

○ First Place, Statistics Poster Competition

**Improving predictions of ensemble methods using distributions of estimated probabilities**, Dietrich Undergraduate Colloquium.

#### Electronic Poster Presentations

2018 **Identifying misconceptions of introductory data science using a think-aloud protocol**, *Joint work with S. Hyun, P. Burckhardt, P. Elliott, C. Evans, K. Lin, A. Luby, C. P. Makris, J. Orellana, A. Reinhart, J. Wieczorek, G. Weinberg, R. Nugent*, eCOTS.

**Using text analysis to characterize student learning in an introductory statistics & data science course**, eCOTS.

#### Invited Industry Talks

2018 **nflWAR: a reproducible method for offensive player evaluation in football**, RIT Sports Analytics Conference.

**Exploring NFL data with nflscrapR**, Pittsburgh useR Group.

2017 **nflWAR: a reproducible method for offensive player evaluation in football**, Carnegie Mellon Sports Analytics Conference.

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## Miscellaneous Articles

2019 **Detecting data analysis patterns in text and graphs to characterize student workflows**, *R. Yurko*, Advanced Data Analysis report.

○ Advisor: Rebecca Nugent

Forthcoming (2019) **Reducing concussions in the NFL: a data-driven approach**, *K. Pelechris, R. Yurko, S. Ventura*, CHANCE.

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## Software

### R Packages

2017 **nflscrapR: Compiling the NFL Play-by-Play API for easy use in R**, *M. Horowitz, R. Yurko, S. Ventura*.

○ GitHub: <https://github.com/maksimhorowitz/nflscrapR>

2018 **nflWAR: An R package to compute WAR for offensive players using nflscrapR**, *R. Yurko*.

○ GitHub: <https://github.com/ryurko/nflWAR>

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**fcscrapR: R package to scrape soccer commentary and statistics from ESPN**, *R. Yurko*.

o GitHub: <https://github.com/ryurko/fcscrapR>

2019 **adaptMT: Modifications including wrapper functions for XGBoost implementation with EM algorithm cross-validation tuning**, *R. Yurko*.

o GitHub: <https://github.com/ryurko/adaptMT>

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## Teaching Experience

### Courses Taught at Carnegie Mellon

2015 **Introduction to Sabermetrics and Exploring Baseball Data with R**, *Fall: 2015, Spring: 2015*.

o Created course materials in student-taught course program

### Courses Served as Teaching Assistant at Carnegie Mellon

2019 **Summer Undergraduate Research Experience in Statistics**, *Summer: 2019*.

o Created datasets and program materials, advised student projects

2018 **Statistical Graphics and Visualization**, *Summer: 2018*.

2018 **Data Mining**, *Spring: 2018*.

2017 **Statistical Computing**, *Fall: 2017*.

2013 - 2014 **Statistical Reasoning and Practice**, *Fall: 2013, 2014, Spring: 2014*.

### Courses Served as Grader at Carnegie Mellon

2015 **Introduction to Probability Theory**, *Fall: 2015*.

2015 **Introduction to Statistical Inference**, *Spring: 2015*.

### Workshops Taught

2018 - 2019 **Carnegie Mellon Football Analytics Workshop**.

o Created workshop materials and instructor of live coding demo

2019 **Wharton Moneyball Academy and Training Camp**.

o Assisted in development of course materials and course instructor for week-long introductory statistics course for high-school students

2018 **Carnegie Mellon Baseball Analytics Workshop**.

o Created workshop materials and co-instructor of live coding demo

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## Research Experience

### Research Assistant at Carnegie Mellon

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2018-Present **Research Assistant**, *Advised by: K. Roeder, M. G'Sell, B. Devlin*, Application of selective inference methodology to genome-wide association studies.

2015 **Undergraduate Research Assistant**, *Advised by: S. Ventura, R. Nugent*, PREDS: Prediction with Ensembles using Distribution Summaries.

#### Other Research Experience at Carnegie Mellon

2015 **Undergraduate Research Course**, *Advised by: R. Nugent, P. Freeman*, Classifying Kepler Objects of Interest.

2014 **Independent Research**, *Advised by: Andrew C. Thomas*, The Science of Fooling Batters: An Objective Analysis of Pitch Sequencing.

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### Industry Experience

#### Full-time

2016-2017 **Quantitative Analytics Associate**, Analytics & Portfolio Management, PNC Financial Services, Pittsburgh, PA.

#### Internships

2015 **Risk Management Intern**, Analytics & Portfolio Management, PNC Financial Services, Pittsburgh, PA.

2014 **Data and Analytics Intern**, Baseball Operations, Pittsburgh Pirates, Pittsburgh, PA.

2013 **Intern**, Equity Analysis, Schenley Park Capital Management, Pittsburgh, PA.

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### Fellowships and Funding

2018-2019 **Carnegie Mellon Presidential Fellowship**.

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### Honors and Awards

2017 **Second Place, Best Young Researchers' Award in Category C: Application**, UP-STAT.

2015 **Andrew Carnegie Society Scholar**, Carnegie Mellon University.

2015 **Phi Kappa Phi Honor Society**.

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2015 **First Place, Statistics Poster Competition**, Meeting of the Minds.

**Honors courses**, *Mathematical Statistics Honors*, *Undergraduate Research Course*, Department of Statistics & Data Science, Carnegie Mellon University.

## Professional Service

### Organization

- 2018-Present **Co-Organizer**, CMSAC Reproducible Research Competition.
- Conference competition to promote reproducible research. Responsibilities included creating competition format, promoting, and organizing evaluation of submissions with reviewer feedback
- 2018 **Organizer**, Carnegie Mellon Baseball Analytics Workshop.
- 50+ attendees from academia, industry, and professional sports. Responsibilities included creating workshop material, website/event/press management, and coordinating Q&A session with professional baseball team
- 2018-2019 **Organizer**, Carnegie Mellon Football Analytics Workshop.
- 80+ attendees from academia, industry, and professional sports. Responsibilities included creating workshop material, website/event/press management, coordinating Q&A session with NFL Director of Data and Analytics
- 2017-Present **Co-Organizer**, Carnegie Mellon Sports Analytics Conference.
- 200+ attendees from academia, industry, and professional sports. Responsibilities included maintaining and assessing current research in field, website/event/speaker/press management, marketing materials, budgeting

### Journal Reviewer

**Big Data**, **Journal of Quantitative Analysis in Sports**, **GENETICS**, **PLOS Computational Biology**.

### Department Service

- 2019 **Judge**, Meeting of the Minds.
- 2018-Present **Mentor**, Women in Statistics Matched Pairs Mentorship Program.
- 2018-Present **Judge**, Statistical Graphics Poster Presentations.
- 2017-Present **Cohort representative**, Student Advisory Committee.
- 2017-Present **Organizer**, Statistics in Sports Reading and Research Group.

### University Service

- 2017-Present **Graduate Student Advisor**, Carnegie Mellon Sports Analytics Club.

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2013-2016 **Co-Founder, Vice President, Editor, and Writer**, Carnegie Mellon Sports Analytics Club.

## Workshop Participation

2019 **Introduction to Bayesian Inference with Stan**, University of Pittsburgh, Pittsburgh PA.

## Professional Societies

**American Society of Human Genetics.**

**American Statistical Association.**

**Classification Society.**

**Society of American Baseball Research.**

## Computing Skills

Expert **R.**

Proficient **SAS.**

Intermediate **Julia, Python, SQL.**

Beginner **HTML, Clojure, Java.**

## Activities

### Team Sports

2017-Present **Graduate Student Assembly Summer Sports.**

○ Co-captain: softball

2013-Present **Carnegie Mellon Intramural Sports.**

○ Captain: flag-football (2018 co-rec champions)

2013 **Carnegie Mellon University Club Baseball Team.**

### Volunteering

2019 **Campaign Against Cancer.**

### Charity Runs

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- 2017-Present **Pirates Home Run 5K 10K.**  
○ <https://www.mlb.com/pirates/community/race>
- 2017-Present **The Great Race.**  
○ <http://www.rungreatrace.com/>
- 2016-Present **Pittsburgh Penguins 6.6K Run & Family Walk.**  
○ <https://www.mariolemieux.org/our-events/6-6k-run-and-family-walk/>

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